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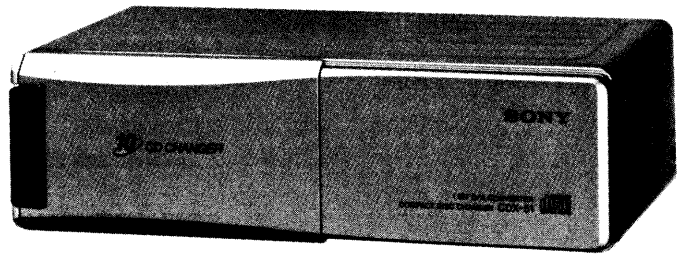
CDX-51/51RF

SERVICE MANUAL

US Model
Canadian Model
AEP Model
E Model
UK Model



Model Name Using Similar Mechanism	CDX-45/45RF
Optical Pick-Up Block Name	KSS-410A

SPECIFICATIONS

CD changer

System	Compact disc digital audio system
Laser Diode Properties	
Material	GaAlAs
Wavelength	780 nm
Emission Duration	Continuous
Laser out-put Power	Less than 44.6 µW*
	* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.
Frequency response	10 – 20,000 Hz
Wow and flutter	Less than measurable limit
Signal-to-noise ratio	More than 90 dB
Output terminals	BUS control output terminal (8 pin)
	Analog audio output terminal (RCA pin)
Current drain	800 mA (at playback)
	800 mA (at disc loading/ejecting)
Operational temperature	
	–10°C to +55°C (14°F – 131°F)
Dimensions	Approx. 305 × 90 × 180 mm (12 1/8 × 3 5/8 × 7 1/8 in.) (w/h/d)
Mass	Approx. 2.2 kg (4 lb. 13 oz.)

Hideaway unit/Remote commander (CDX-51RF ONLY)

Frequency	88.3 MHz/88.7 MHz/89.7 MHz/89.9 MHz (switchable)
Dimensions	Hideaway unit: Approx. 125.2 × 31.6 × 128.2 mm (5 × 1 1/4 × 5 1/8 in.) (w/h/d)
	Remote commander: Approx. 148 × 30 × 15 mm (5 7/8 × 1 3/16 × 19/32 in.) (w/h/d)
Mass	Hideaway unit: Approx. 450 g (16 oz.)
	Remote commander: Approx. 120 g (4 oz.)

Supplied accessories

Disc magazine (1)
BUS cable (1)
RCA pin cord (1)
Mounting hardware (1 set)

Design and specifications subject to change without notice.

CDX-51
COMPACT DISC CHANGER

CDX-51RF
COMPACT DISC CHANGER SYSTEM

SONY®

MICROFILM

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NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780 nm
- Emission Duration: continuous
- Laser Output Power: less than 44.6 μW*
  * This output is the value measured at a distance of 200 mm from the objective lens surfase on the Optical Pick-up Block.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radistion exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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SUPPLEMENT-1		

SERVICING NOTE

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ℃ during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

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SECTION 1
GENERAL

This section is extracted from instruction manual.

Installation

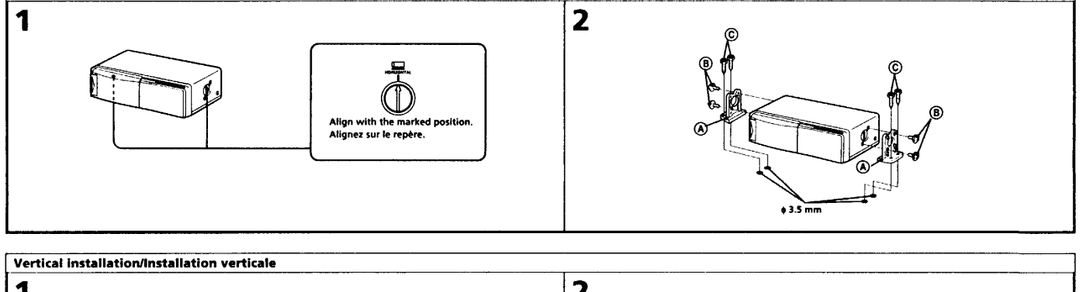
Supplied Mounting Hardware

The letters in the list are keyed to those in the instructions.

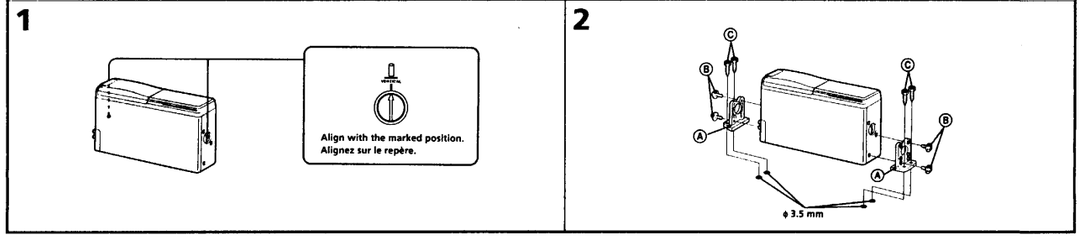
How to install the CD changer

When you install the CD changer, be careful not to damage wiring or equipment on the other side.

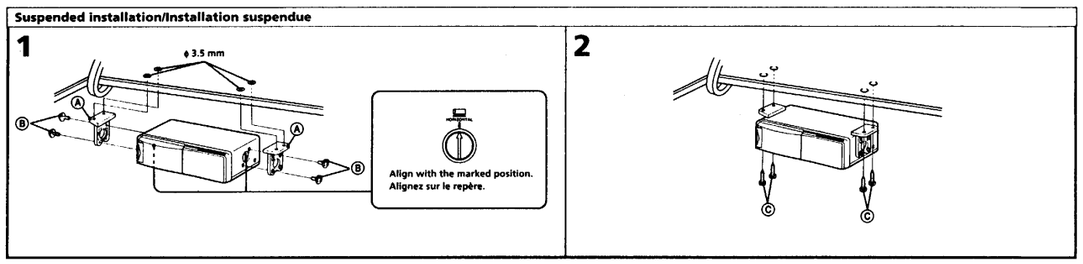
Horizontal installation/Installation horizontale



Vertical installation/Installation verticale



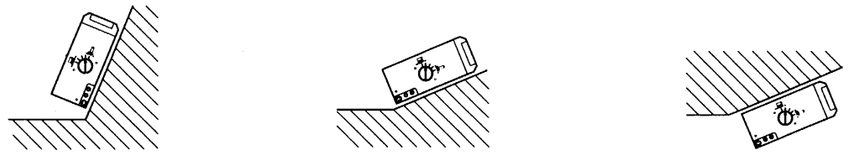
Suspended installation/Installation suspendue



When the unit is to be installed under the rear tray etc. or in the trunk room, observe the following.
- Choose the mounting location carefully so that the unit can be installed horizontally.
- Make sure that the unit does not hinder the movement of the torsion bar spring etc. of the trunk lid.

Inclined installation/Installation inclinée

After installing the unit, align the dial with one of the marks so that the arrow comes as close to a vertical position as possible.



Note
Be sure to align the left and right dials with the same mark.

Installation

Matériel de montage fourni

Les lettres de la liste correspondent à celles des instructions.

Installation du changeur de CD

Quand vous installez le changeur de CD, veillez à ne pas endommager les câbles ou les instruments qui se trouvent de l'autre côté.

Si vous comptez installer le changeur de CD sous la plage arrière par exemple ou, dans le coffre, prenez les précautions suivantes.
- Choisissez soigneusement l'emplacement pour que le changeur soit à l'horizontale.
- Vérifiez que le changeur ne gêne pas le ressort du capot, entre autres.

Après avoir installé l'appareil, alignez le disque sur l'un des repères afin que la flèche soit aussi proche que possible de la position verticale.

Remarque
Veillez à aligner les disques gauche et droite sur le même repère.

CD Changer

- Choose the mounting location carefully, observing the following:
  - The fuel tank should not be damaged by the tapping screws.
  - There should be no wire harnesses or pipelines under the place where you are going to install the unit.
  - The spare tire, tools or other equipment in or under the trunk should not be interfered with or damaged by the screws or the unit itself.
- Be sure to use only the supplied mounting hardware for a safe and secure installation.

Changeur de CD

- Choisir l'emplacement de montage en tenant compte des observations suivantes:
  - Vérifiez que le réservoir d'essence ne risque pas d'être endommagé par les vis taraudeuses.
  - Il ne doit pas y avoir de faisceaux de fils ou de tuyaux à l'emplacement du montage.
  - Vérifiez que l'appareil ou les vis ne risquent pas d'endommager ou de gêner la roue de secours, les outils ou autre objet dans le coffre.
- Pour garantir la sécurité de l'installation, utilisez uniquement le matériel de montage fourni.

Remote Commander

- Avoid mounting it in the following locations where it may:
  - hinder normal driving conditions of the driver.
  - jeopardize the passengers.
  - be subjected to the hot air from the heater.
  - be subjected to direct sunlight.
- After installing the system, be sure to check that the whole system can be operated by the remote commander.

Télécommande

- Evitez de l'installer dans des endroits où elle pourrait:
  - gêner la conduite normale du véhicule,
  - mettre les passagers en danger,
  - être exposés au courant d'air chaud du chauffage,
  - être en plein soleil.
- Quand vous avez installé le système, vérifiez que la télécommande peut commander tout le système.

Installing the Remote Commander

Use the supplied double-sided adhesive tape Ⓓ and mount the remote commander to a suitable location where it will not interfere with your driving.

Installation de la télécommande

Utilisez la bande à double face adhésive fournie Ⓓ pour installer la télécommande dans un endroit qui ne risque pas de gêner la conduite.

Features

The CDX-51RF is a compact disc changer system comprised of the remote commander, the hideaway (modulator) unit and the CD changer. The hideaway unit modulates the audio signal from the CD changer into the RF (Radio Frequency) signal at 88.3 MHz, 88.7 MHz, 89.7 MHz or 89.9 MHz so that it can be received by the existing FM tuner of your car audio. Therefore you will be able to enjoy CD play with your car audio even if it has no input terminals for a compact disc player.

- Compact and space saving CD changer for vertical, horizontal, suspended or inclined installation in your car.
- Supplied remote commander enables you to control the CD changer installed in the trunk room of your car.
- **Repeat play function** for playing a track or a disc repeatedly.
- **Shuffle play function** for playing tracks of one disc or of all discs in random order.

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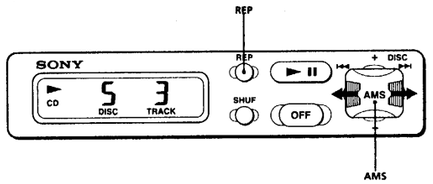
Connections/Connexions



Changing the Transmitting Frequency

You can select the frequency of the modulated RF signal being transmitted from the hideaway unit according to the level of interference noise.

1. Press the REP button for approx. 2 seconds.
The system will enter the frequency selecting mode. The initial setting is 88.3 MHz.

2. Press either the left or right side of the AMS switch to select the frequency.
Each time you press, the AMS switch will change the frequency as follows:

I◄◄ :88.3 MHz → 89.9 MHz → 89.7 MHz → 88.7 MHz → 88.3 MHz
►►I :88.3 MHz → 88.7 MHz → 89.7 MHz → 89.9 MHz → 88.3 MHz

3. Press the REP button again for approx. 2 seconds.

Note
Be sure to set the frequency of your FM tuner to that of the newly selected frequency.

Changement de la fréquence de transmission

Vous pouvez sélectionner la fréquence du signal modulé RF transmis par l'appareil dissimulé en fonction du niveau de bruit d'interférence.

1. Appuyez sur la touche REP pendant environ 2 secondes.
Le système entre en mode de sélection de fréquence. Le réglage initial est de 88,3 MHz.

2. Appuyez sur la gauche ou la droite de la touche AMS pour choisir la fréquence.
A chaque pression sur la touche, la fréquence change dans l'ordre suivant:

I◄◄ :88,3 MHz → 89,9 MHz → 89,7 MHz → 88,7 MHz → 88,3 MHz
►►I :88,3 MHz → 88,7 MHz → 89,7 MHz → 89,9 MHz → 88,3 MHz

3. Appuyez de nouveau sur la touche REP pendant environ 2 secondes.

Remarque
N'oubliez pas de régler votre tuner FM sur la nouvelle fréquence choisie.

Changing the Output Level

You can select the output level from the CD changer. Normally the system is used in the initial output level, change the level if necessary.

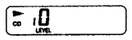
1. Press the REP button for approx. 2 seconds.
The system will enter the frequency selecting mode.

2. Press the REP button momentarily.
The system will enter the output level selecting mode.

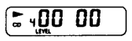
Initial setting

3. Press either the left or right side of the AMS switch to select the level.

To decrease the output level

I◄◄: → 

To increase the output level

►►I: → 

4. Press the REP button once again for approx. 2 seconds.

Changement du niveau de sortie

Vous pouvez sélectionner le niveau de sortie du changeur de CD. Normalement, le système fonctionne sur le niveau de sortie initial. Changez-le si nécessaire.

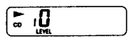
1. Appuyez sur la touche REP pendant environ 2 secondes.
Le système entre en mode de sélection de fréquence.

2. Appuyez un moment sur la touche REP.
Le système entre en mode de sélection de niveau de sortie.

Réglage initial

3. Appuyez sur la gauche ou la droite de la touche AMS pour choisir le niveau.

Pour diminuer le niveau de sortie

I◄◄: → 

Pour augmenter le niveau de sortie

►►I: →

4. Appuyez de nouveau sur la touche REP pendant environ 2 secondes.

Caution

- This system is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the **yellow** and **red** power input leads only after all other leads have been connected.
- Be sure to connect the red power input lead to the positive 12 V power terminal which is energized when the ignition key is in the accessory position.
- **Run all ground wires to a common ground point.**
- **Press the reset button on the hideaway unit after completing the connections.**

Fuse Replacement

If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after replacement, there may be an internal malfunction.

Warning
Use the specified amperage fuse.
Use of a higher amperage fuse may cause serious damage.

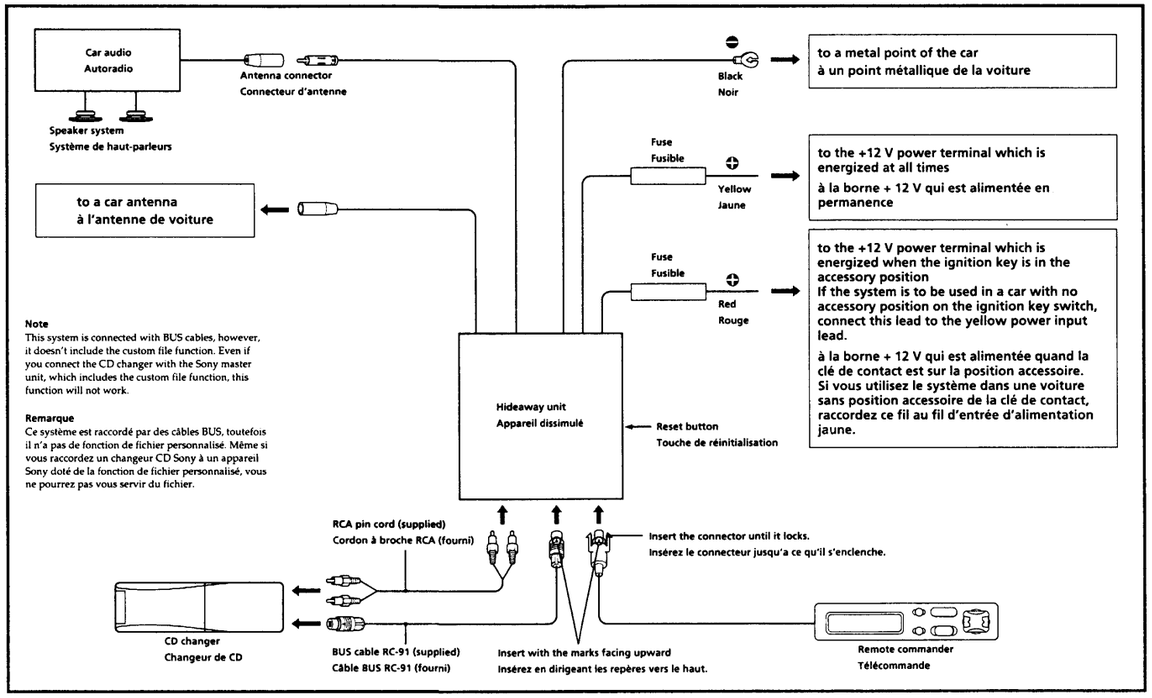
Précautions

- Ce système est conçu pour fonctionner sur courant continu de 12 V avec masse négative.
- Avant d'effectuer les raccordements, débranchez la borne de terre de la batterie du véhicule pour éviter tout court-circuit.
- Branchez les fils d'entrée d'alimentation **jaune** et **rouge** seulement après avoir terminé tous les autres branchements.
- Veillez à ne pas raccorder le fil rouge d'entrée d'alimentation à la borne positive de 12 V qui est alimentée quand la clé de contact est sur la position accessoire.
- **Rassemblez tous les fils de terre en un point de masse commun.**
- **Quand vous avez terminé les connexions, appuyez sur la touche de réinitialisation de l'unité dissimulée.**

Remplacement du fusible

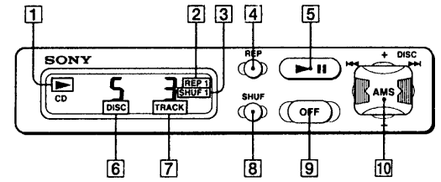
Si le fusible saute, vérifiez les connexions d'alimentation et remplacez-le. Si le fusible saute à nouveau quand vous venez de le remplacer, il s'agit peut être d'un mauvais fonctionnement interne.

Avertissement
Utilisez un fusible de l'ampérage spécifié.
L'utilisation d'un fusible d'ampérage supérieur peut causer de sérieux dommages.


Car audio
Autoradio
Antenna connector
Connecteur d'antenne
Speaker system
Système de haut-parleurs
to a car antenna
à l'antenne de voiture
Black
Noir
to a metal point of the car
à un point métallique de la voiture
Fuse
Fusible
Yellow
Jaune
to the +12 V power terminal which is energized at all times
à la borne + 12 V qui est alimentée en permanence
Fuse
Fusible
Red
Rouge
to the +12 V power terminal which is energized when the ignition key is in the accessory position
If the system is to be used in a car with no accessory position on the ignition key switch, connect this lead to the yellow power input lead.
à la borne + 12 V qui est alimentée quand la clé de contact est sur la position accessoire.
Si vous utilisez le système dans une voiture sans position accessoire de la clé de contact, raccordez ce fil au fil d'entrée d'alimentation jaune.
Note
This system is connected with BUS cables, however, it doesn't include the custom file function. Even if you connect the CD changer with the Sony master unit, which includes the custom file function, this function will not work.
Remarque
Ce système est raccordé par des câbles BUS, toutefois il n'a pas de fonction de fichier personnalisé. Même si vous raccordez un changeur CD Sony à un appareil Sony doté de la fonction de fichier personnalisé, vous ne pourrez pas vous servir du fichier.
Hideaway unit
Appareil dissimulé
Reset button
Touche de réinitialisation
RCA pin cord (supplied)
Cordon à broche RCA (fourni)
Insert the connector until it locks.
Insérez le connecteur jusqu'a ce qu'il s'enclenche.
CD changer
Changeur de CD
BUS cable RC-91 (supplied)
Câble BUS RC-91 (fourni)
Insert with the marks facing upward
Insérez en dirigeant les repères vers le haut.
Remote commander
Télécommande

Location and Function of Controls

Remote Commander



1 ► **(play/pause) indication**
Lights during CD playback and blinks when the pause button is pressed.

2 REP (repeat play) indication

3 SHUF (shuffle play) indication

4 REP (repeat play/control mode set) button

5 ►II **(play/pause) button**
If pressed during playback, the CD will pause. If pressed again, playback will continue.

6 DISC (disc number) indication
The indicated disc number matches the disc number on the disc magazine.

7 TRACK (track number) indication

8 SHUF (shuffle play) button

9 OFF button

When the Unit is Used in a Car with No Accessory Position on the Ignition Key Switch

Be sure to press the OFF button on the remote commander to turn the system off and avoid battery wear when you leave your car and the engine does not run.

10 AMS*/DISC (disc select/manual search) switch
Depending on which side of the switch you press, you can select from following functions.

AMS function
To search the beginning of a track, press
►►I to locate the beginning of the next track.
I◄◄ to locate the beginning of the track currently played.
If you press the switch repeatedly, the beginnings of all following or previous tracks will be located until the end of the disc is reached.

Disc select function
To select a desired disc, press **momentarily**
+ to select the next disc.
– to select the previous disc.

Manual search function
To quickly search a desired point of a track, press **and hold down**
+ to fast-forward.
– to fast-reverse.
The elapsed playing time of the track will be shown on the display window during manual search.

*Automatic Music Sensor

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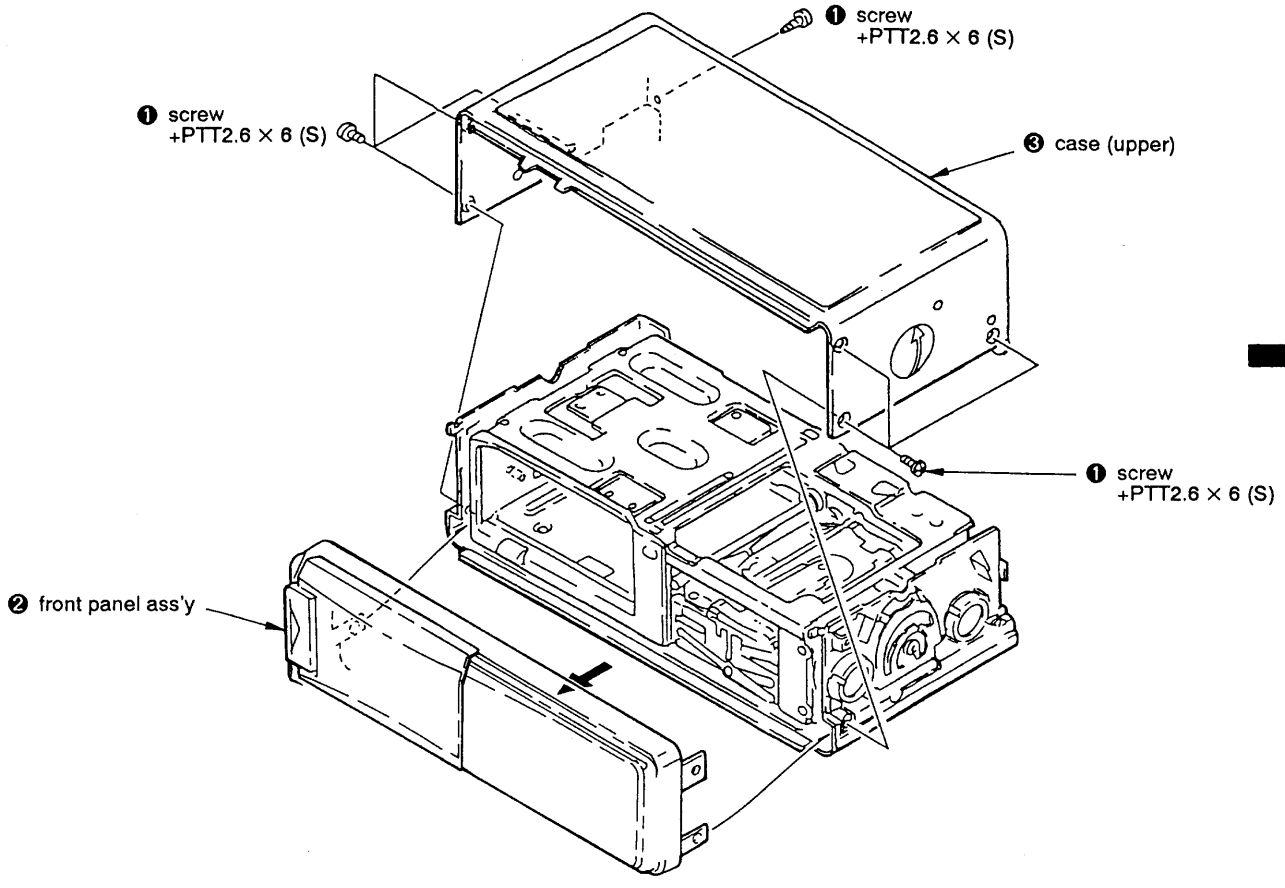
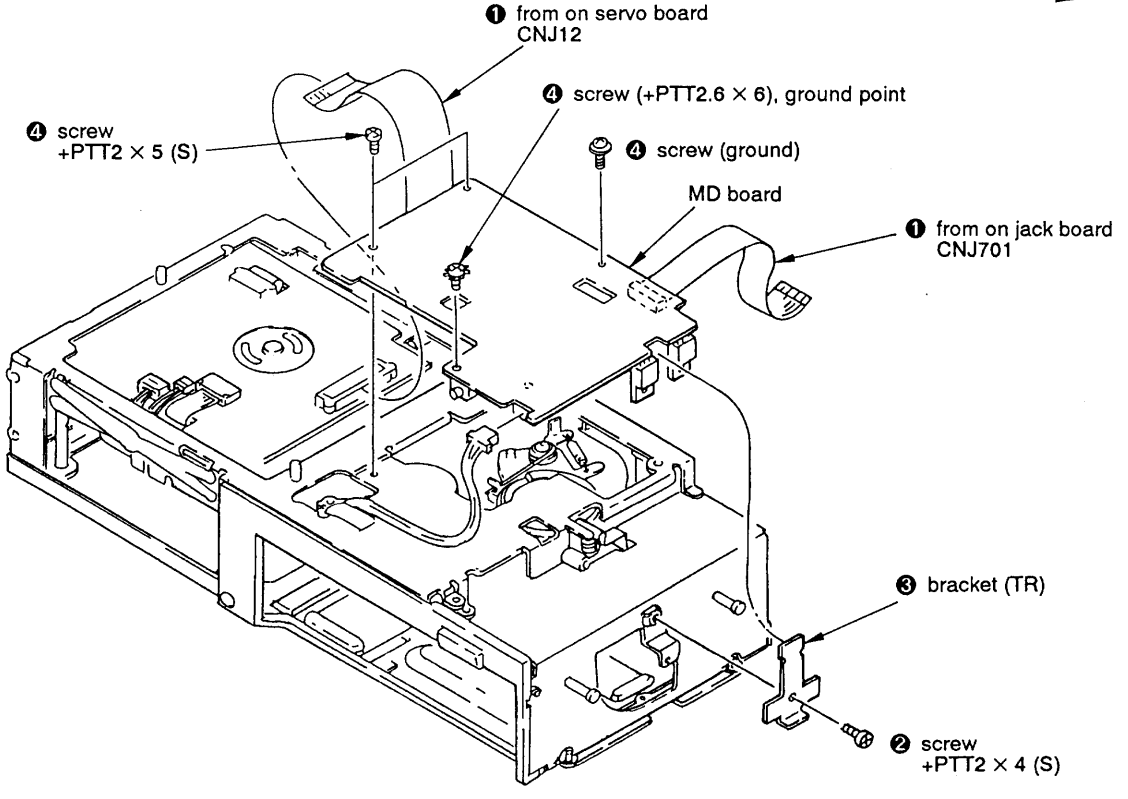
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

CASE (UPPER) AND FRONT PANEL ASS'Y



MD BOARD



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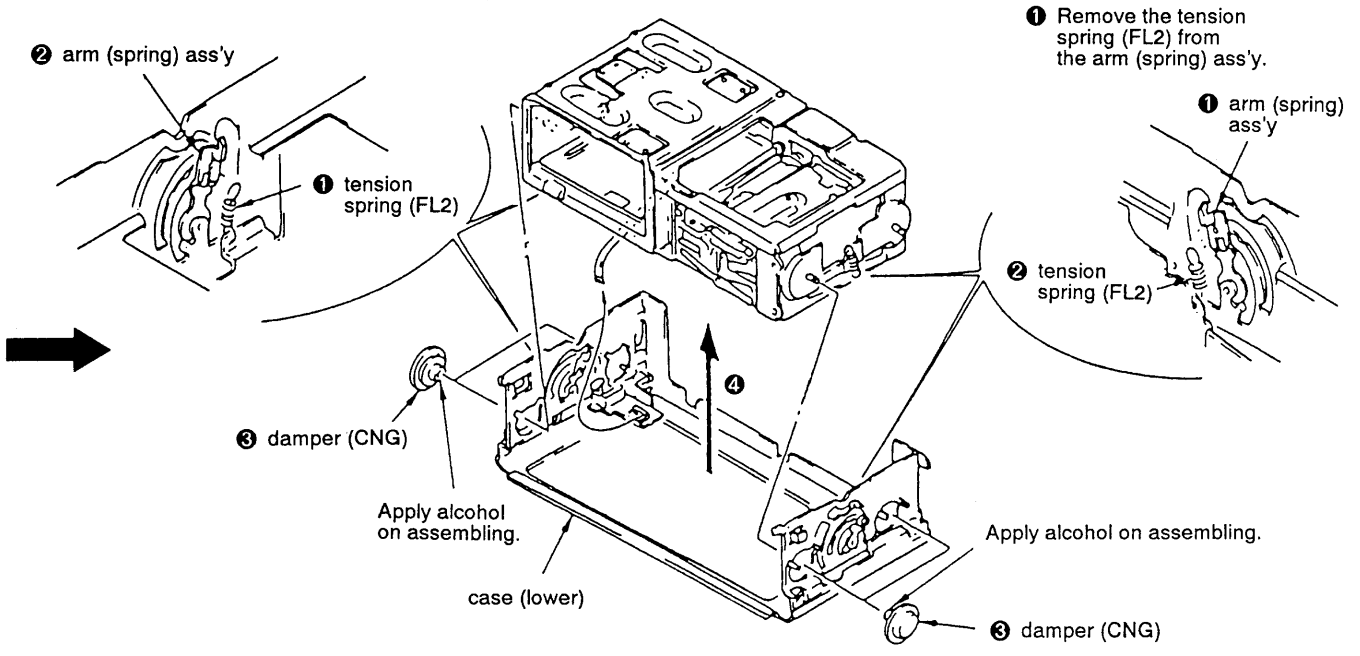
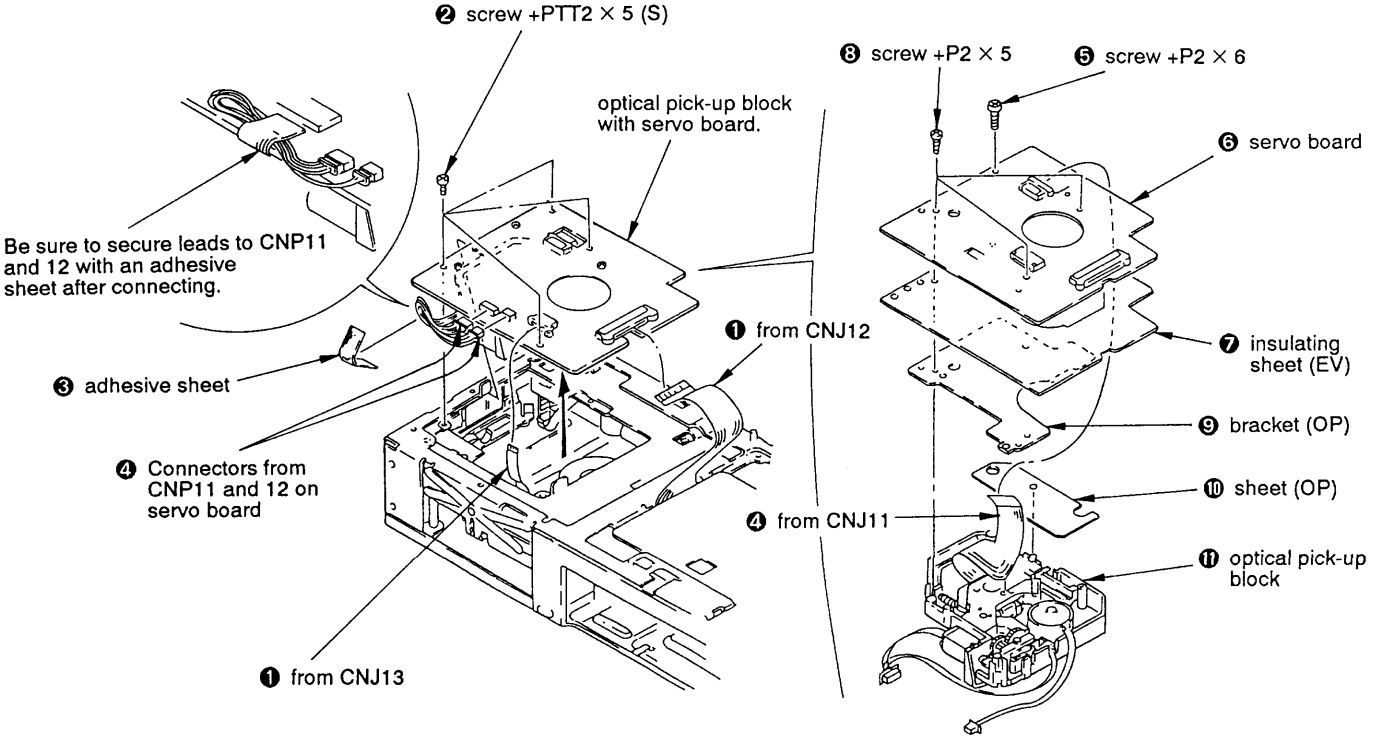
CASE (LOWER)


❷ arm (spring) ass'y
❶ tension spring (FL2)
❶ Remove the tension spring (FL2) from the arm (spring) ass'y.
❶ arm (spring) ass'y
❷ tension spring (FL2)
❹
❸ damper (CNG)
Apply alcohol on assembling.
case (lower)
Apply alcohol on assembling.
❸ damper (CNG)

SERVO BOARD AND OPTICAL PICK-UP BLOCK


❷ screw +PTT2 × 5 (S)
❽ screw +P2 × 5
❺ screw +P2 × 6
optical pick-up block with servo board.
❻ servo board
Be sure to secure leads to CNP11 and 12 with an adhesive sheet after connecting.
❶ from CNJ12
❼ insulating sheet (EV)
❸ adhesive sheet
❾ bracket (OP)
❹ Connectors from CNP11 and 12 on servo board
❿ sheet (OP)
❹ from CNJ11
⓫ optical pick-up block
❶ from CNJ13

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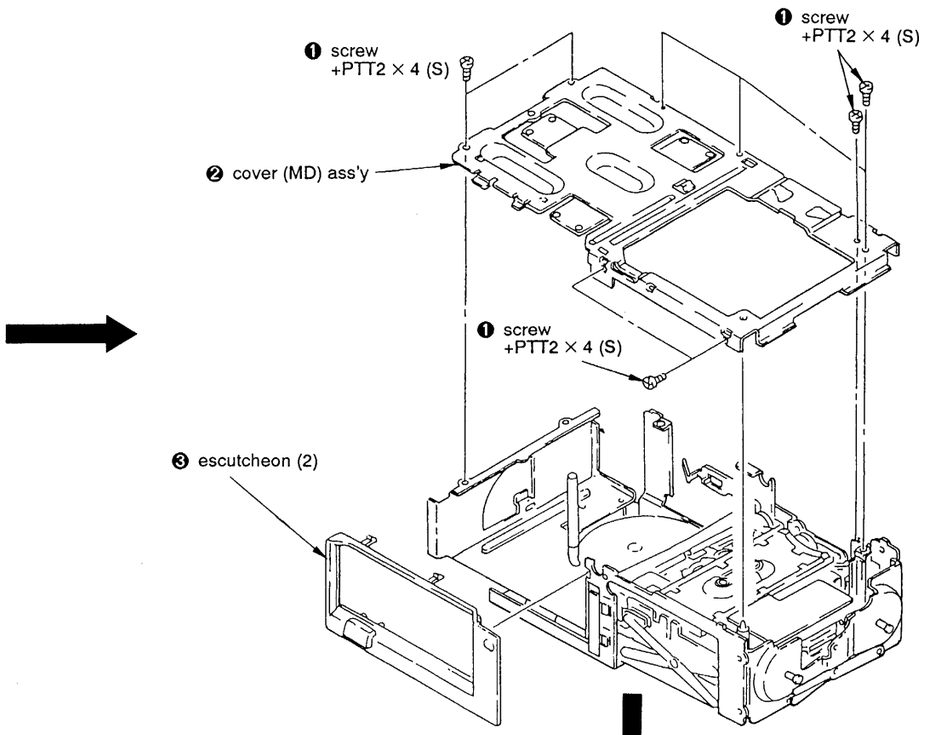
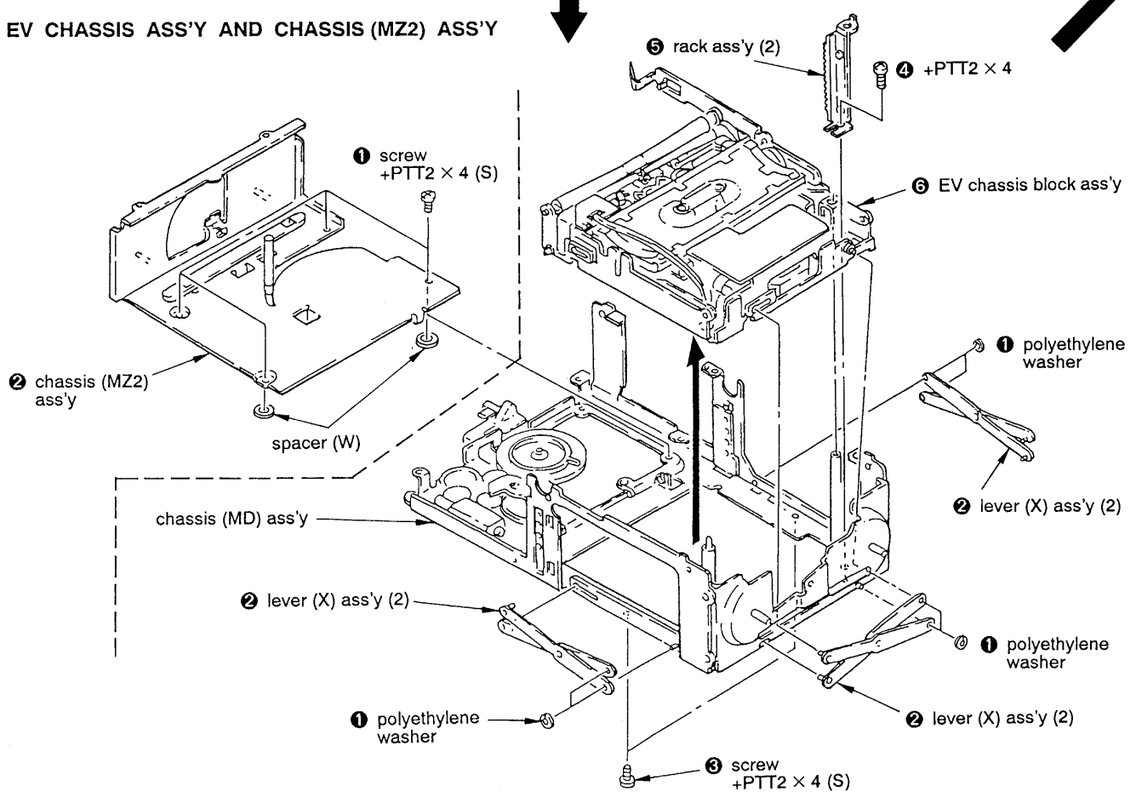
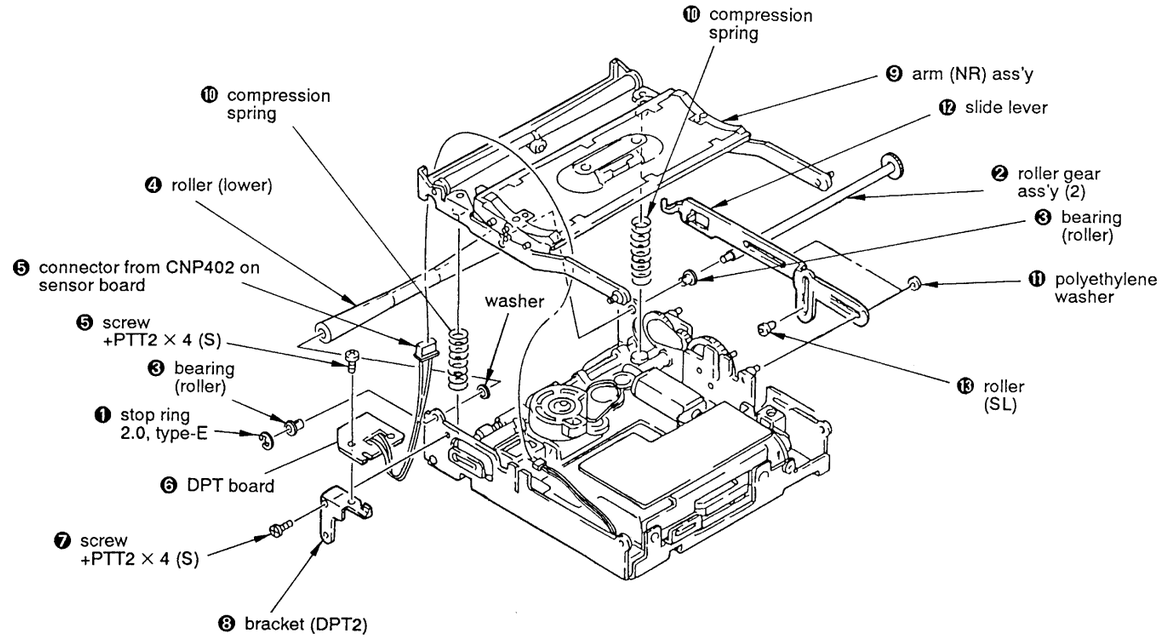
COVER (MD) ASS'Y AND ESCUTCHEON



EV CHASSIS ASS'Y AND CHASSIS (MZ2) ASS'Y


❺ rack ass'y (2)
❹ +PTT2 × 4
❶ screw +PTT2 × 4 (S)
❻ EV chassis block ass'y
❶ polyethylene washer
❷ chassis (MZ2) ass'y
spacer (W)
chassis (MD) ass'y
❷ lever (X) ass'y (2)
❷ lever (X) ass'y (2)
❶ polyethylene washer
❶ polyethylene washer
❷ lever (X) ass'y (2)
❸ screw +PTT2 × 4 (S)

ROLLER (LOWER) AND DPT BOARD AND ARM (NR) ASS'Y



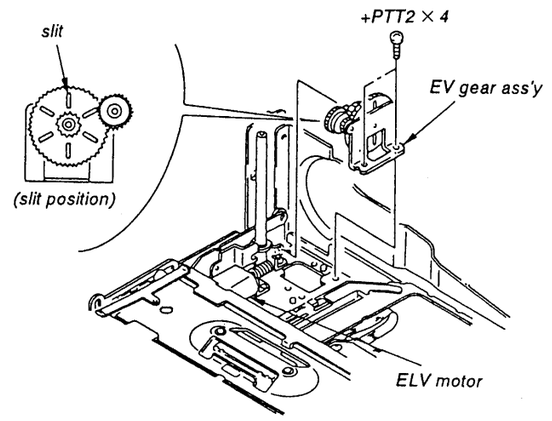
SECTION 3
MECHANICAL ADJUSTMENTS

3-1. ELEVATOR HEIGHT ADJUSTMENT

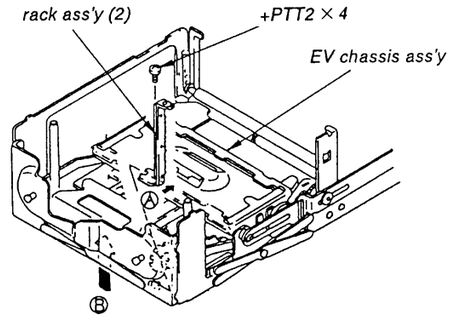
This adjustment should be done when replacing the rack assembly on the parts related to it.

Procedure :

1. Fit the EV gear assembly after adjusting its slit position as shown in the figure. (When the slit position is out of order after fitting, it can be adjusted finely by turning the worm gear of the ELV motor.)



2. Fit the rack assembly putting it in the arrow Ⓐ direction. At this time insert a spacer (approx. 1 mm thickness) or fit the rack assembly while pushing the EV chassis assembly in the arrow Ⓑ direction.



Note : When this adjustment is out of order, it doesn't operate normally and the roaring of the motor can be heard. In this case adjust again.

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SECTION 4
ELECTRICAL ADJUSTMENTS

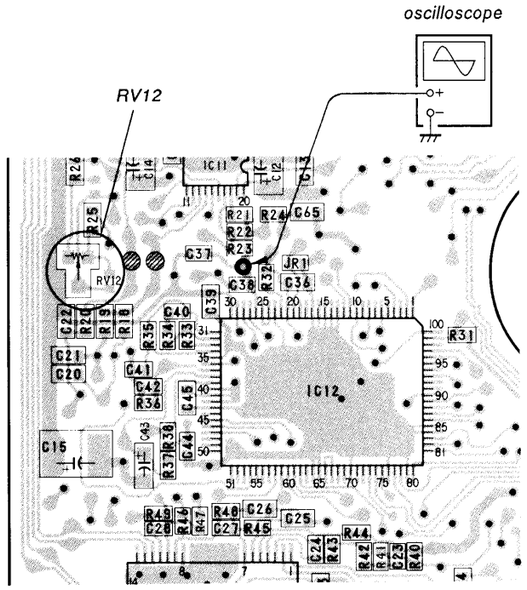
COMPACT DISC CHANGER

1. Perform adjustments as given.
2. Be sure to use the disc "YEDS-18" parts code : 3-702-101-01, but only when indicated.
3. Power supply voltage : DC 14.4 V (more than 3A).

4-1. FOCUS OFFSET ADJUSTMENT

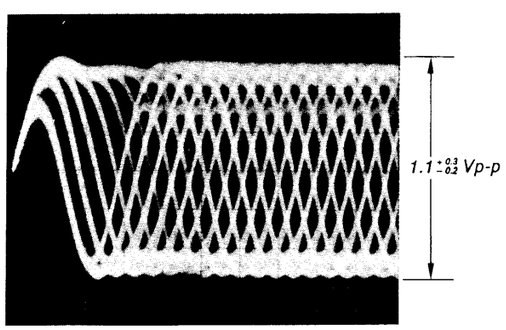
Procedure :

【SERVO BOARD】 – Conductor Side –



1. Connect the oscilloscope to SERVO board test point RF , pin ㉘ of IC12.
2. Put the set into play mode by loading the disc.
3. Adjust (SERVO board) RV12 so that the waveform on the oscilloscope (eye pattern) is good.
   (A good eye pattern means that the diamond shape (◇) in the center of the oscilloscope can be clearly distinguished.)

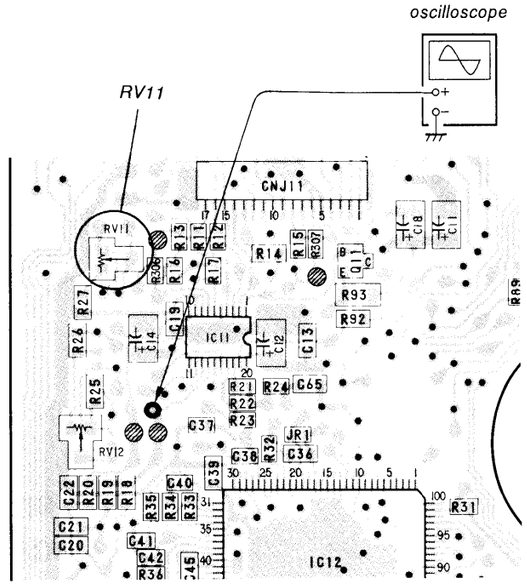
Volt/Div : 200 mV
Time/Div : 0.5 μSec



4-2. TRACKING OFFSET ADJUSTMENT

Procedure :

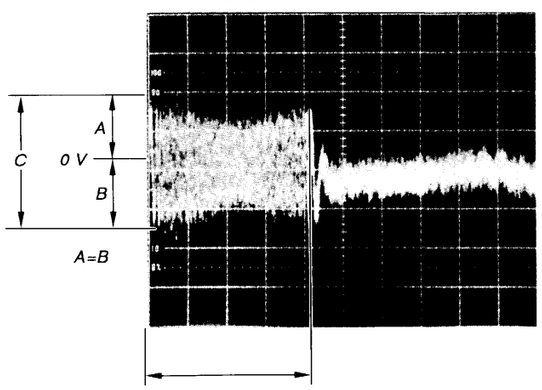
【SERVO BOARD】 – Conductor Side –



1. Connect the oscilloscope to SERVO board test point TE , pin ⑭ of IC11.
2. Put the set into play mode by loading the disc.
3. Press the ⏮ AMS ⏭ button, then, check the traverse waveform.*
4. Adjust RV11 (SERVO board) so that the oscilloscope reading is symmetrical in relation to 0 V.

*Traverse waveform : This is the tracking error waveform appears when crossing the track.

Volt/Div : 0.5 V
Time/Div : 2 mSec
Center 0 V



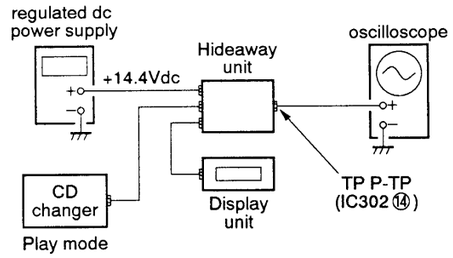
traverse waveform
(100 track jump waveform)

HIDEAWAY UNIT

Note: Don't move VR302 on replacing ICs or others.

4-3. DC BALANCE ADJUSTMENT

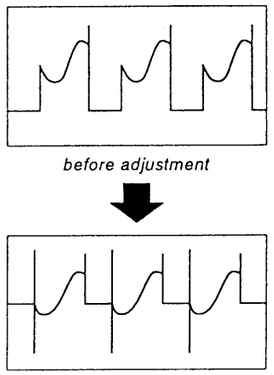
Connection:



Procedure:

1. Adjust with VR301 so that the 38 kHz signal leakage becomes minimum.

Waveform on oscilloscope

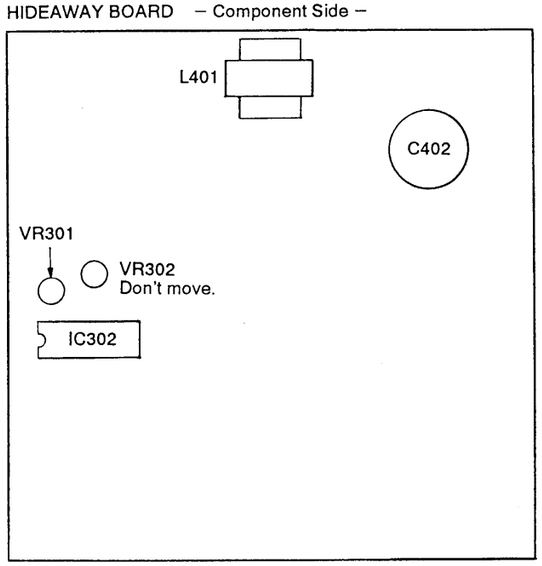


before adjustment

after adjustment

Adjustment Location:

HIDEAWAY BOARD – Component Side –



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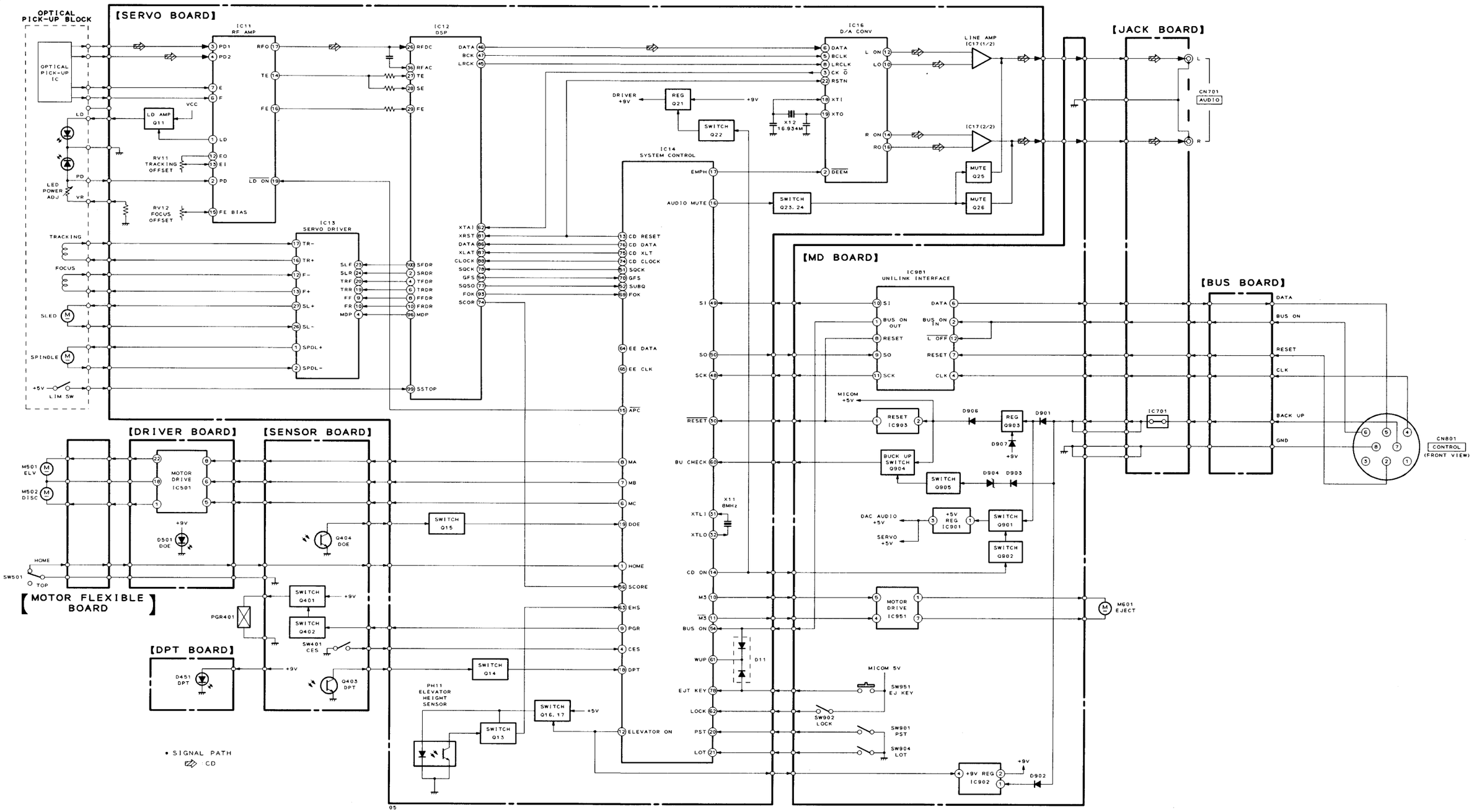
SECTION 5
DIAGRAMS

5-1. COMPACT DISC CHANGER SECTION BLOCK DIAGRAM



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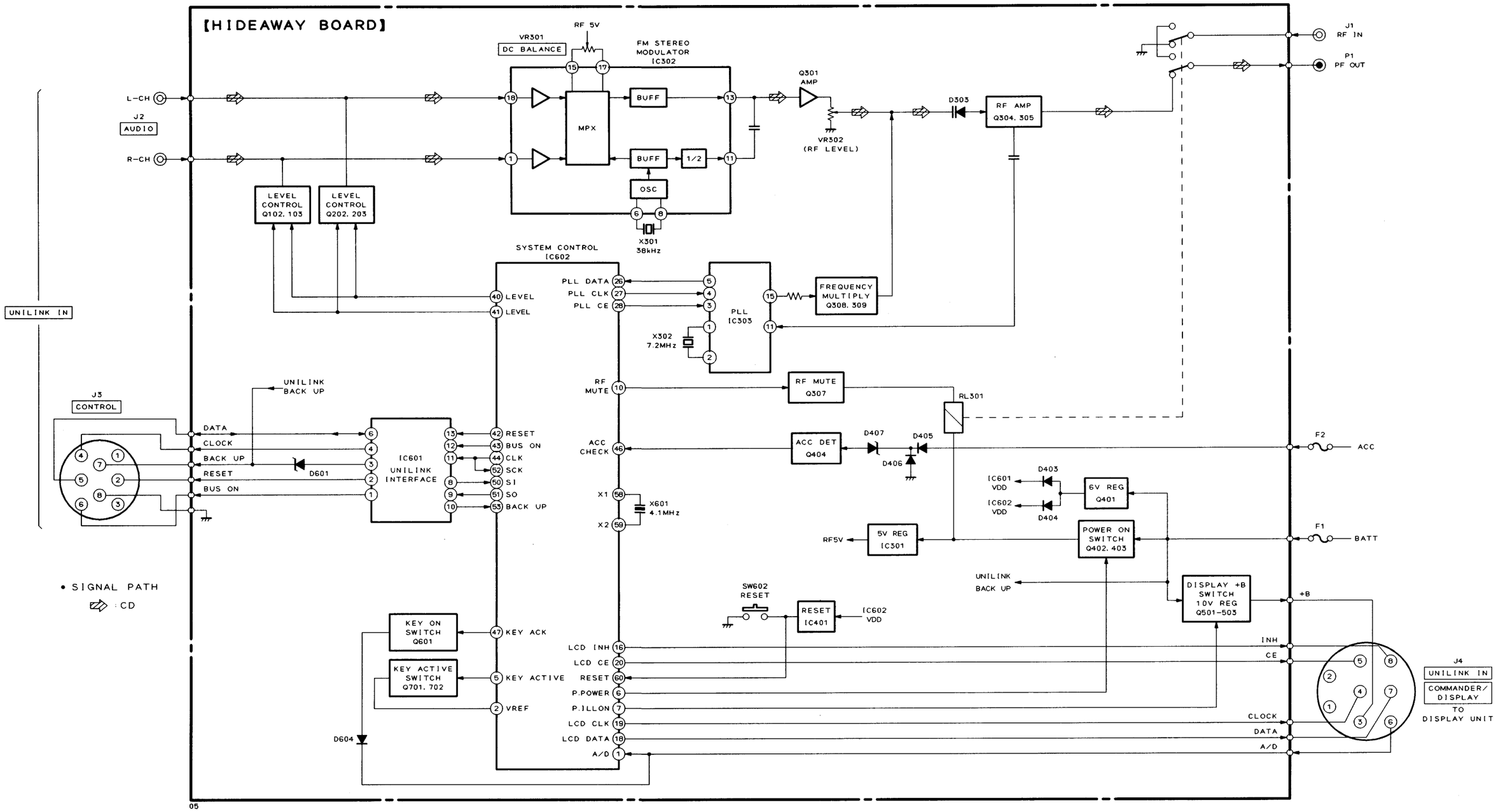
5-2. HIDEAWAY SECTION BLOCK DIAGRAM



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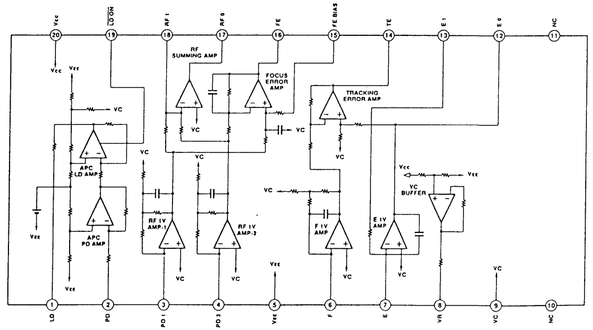
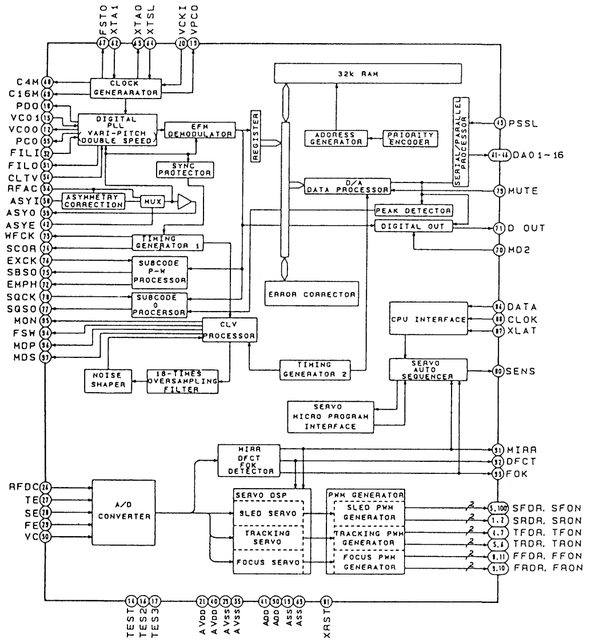
• IC Block Diagrams

COMPACT DISC CHANGER SECTION

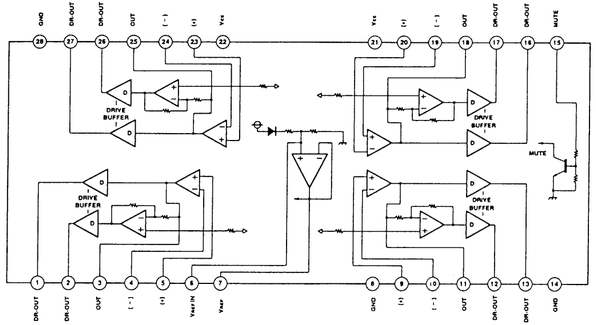
IC11 CXA1571N (SERVO BOARD)



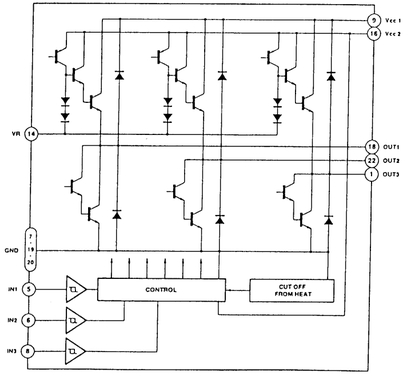
IC12 CXD2515Q (SERVO BOARD)



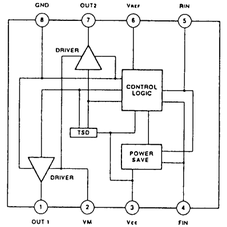
IC13 BA6297AFP (SERVO BOARD)



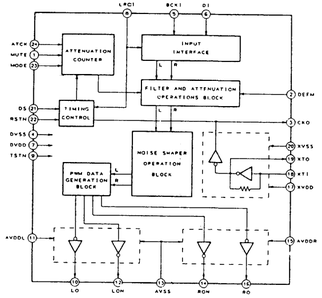
IC501 BA6247FP-Y (DRIVER BOARD)



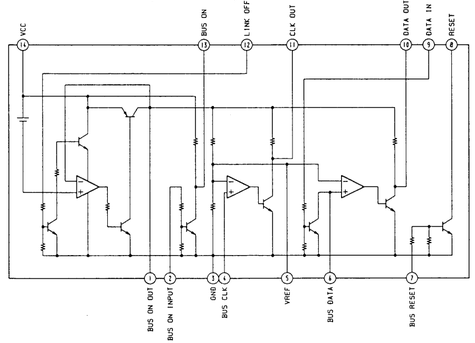
IC951 BA6287F (MD BOARD)



IC16 SM5874AM-ET (SERVO BOARD)

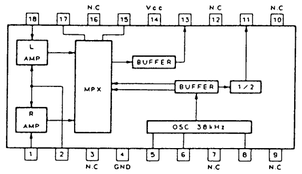


IC981 MM1284XFFE (MD BOARD)

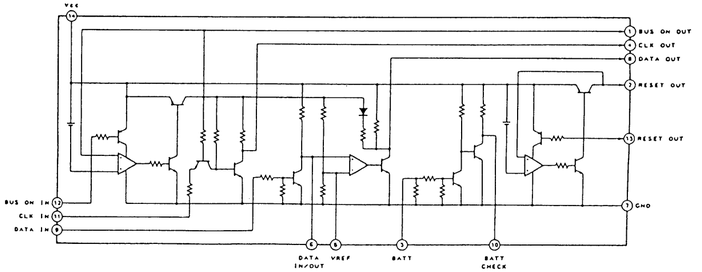


HIDEAWAY SECTION

IC302 BA1405 (HIDEAWAY BOARD)



IC601 MM1175XF (HIDEAWAY BOARD)



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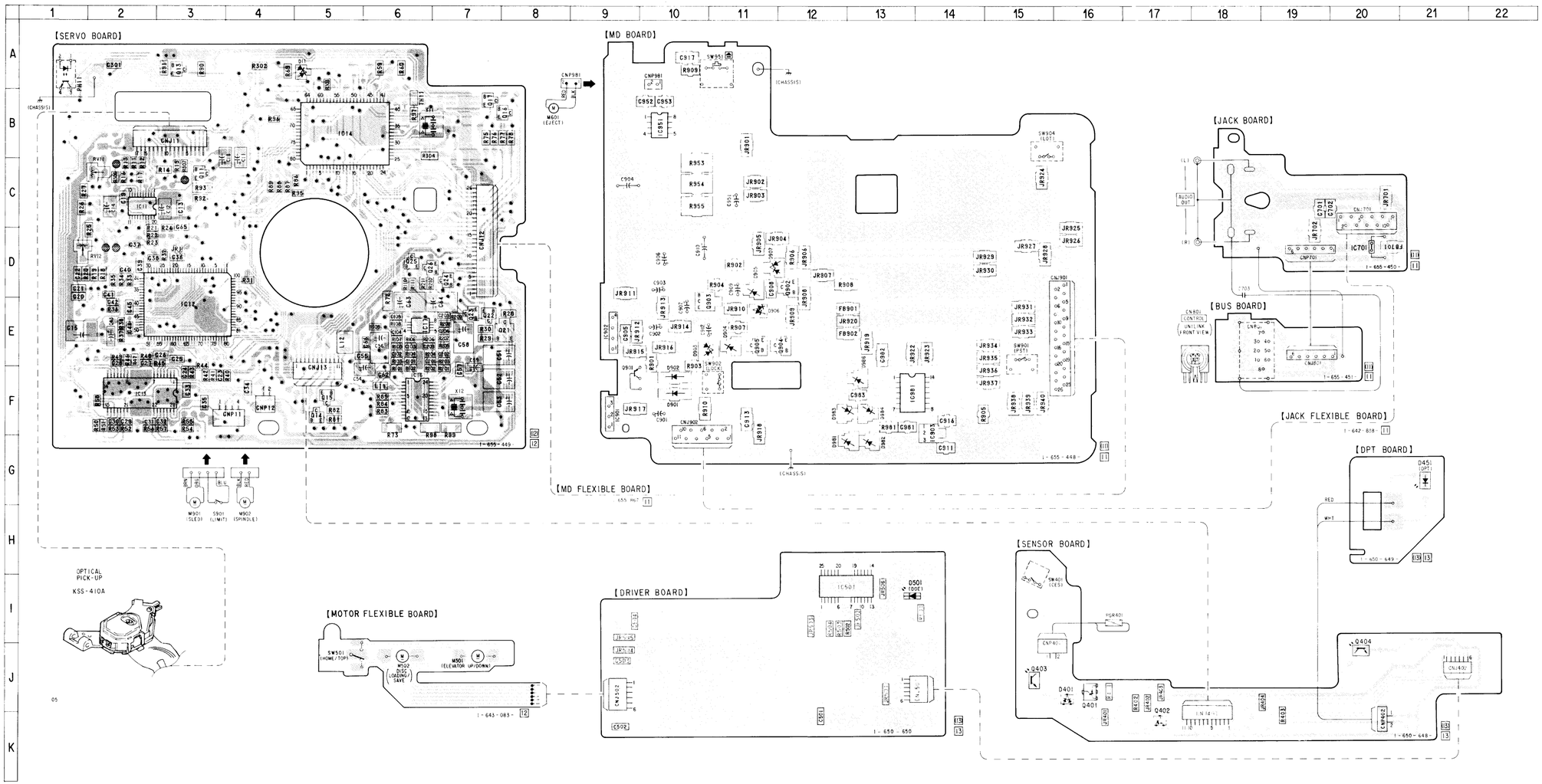
5-3. COMPACT DISC CHANGER SECTION PRINTED WIRING BOARDS

• See page 28 for Semiconductor Lead Layouts and Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
D11	A-5
D401	J-16
D451	G-21
D501	I-13
D901	F-10
D902	F-10
D903	E-10
D904	E-11
D905	D-11
D906	E-11
D907	D-11
D981	G-12
D982	G-13
D983	F-12
D984	F-13
D986	F-13
IC11	C-2
IC12	E-3
IC13	F-2
IC14	B-5
IC16	F-6
IC17	E-6
IC501	I-12
IC701	D-20
IC901	F-9
IC902	E-9
IC903	F-14
IC951	B-10
IC981	F-13
Q11	C-3
Q13	A-3
Q14	F-5
Q15	F-5
Q16	B-7
Q17	B-7
Q21	E-8
Q22	E-7
Q23	E-7
Q24	D-7
Q25	D-6
Q26	D-6
Q401	J-16
Q402	K-17
Q403	J-15
Q404	I-20
Q901	F-9
Q902	D-12
Q903	E-10
Q904	E-12
Q905	E-11



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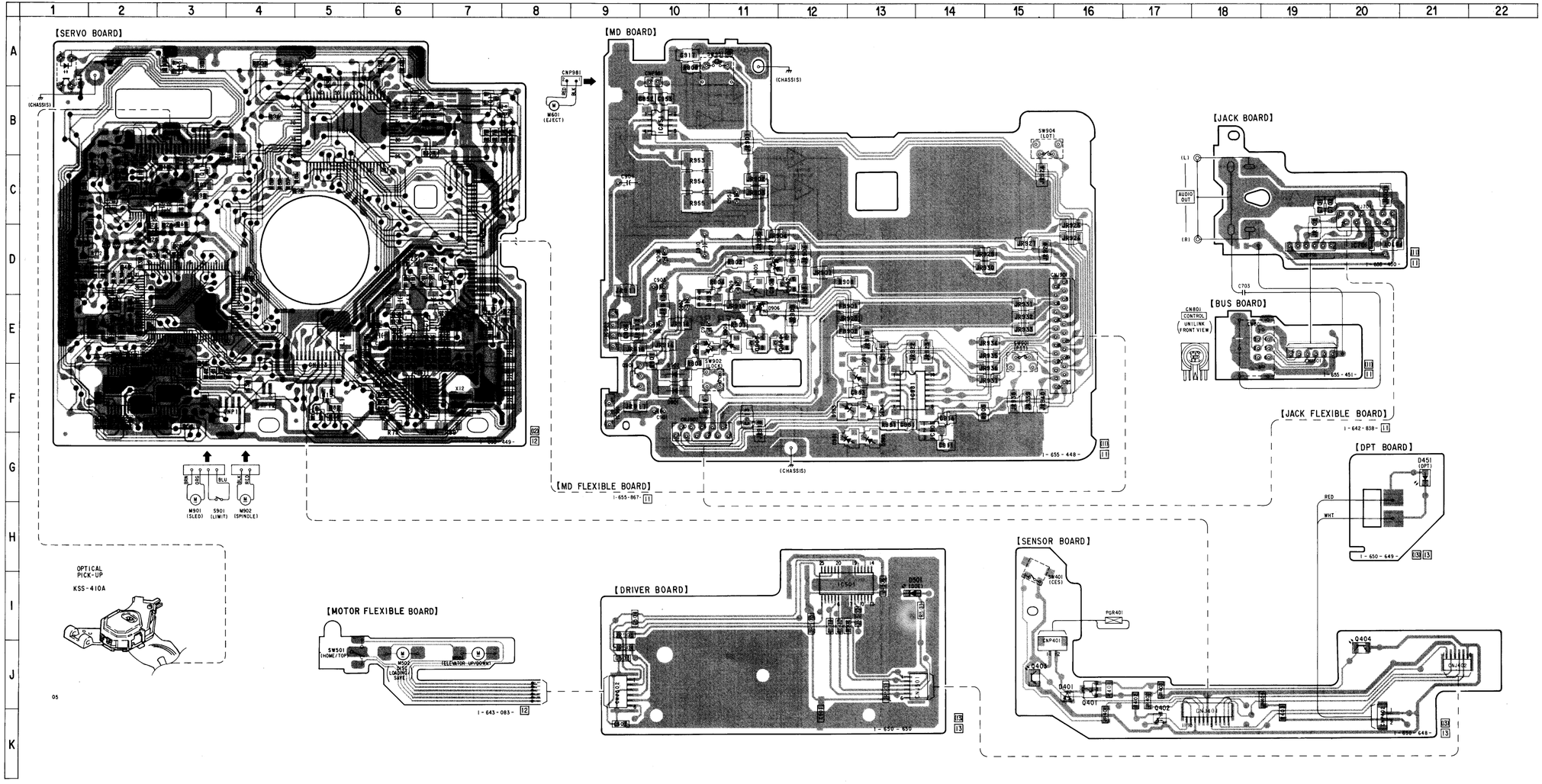
5-3. COMPACT DISC CHANGER SECTION PRINTED WIRING BOARDS

• See page 28 for Semiconductor Lead Layouts and Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
D11	A-5
D401	J-16
D451	G-21
D501	I-13
D901	F-10
D902	F-10
D903	E-10
D904	E-11
D905	D-11
D906	E-11
D907	D-11
D981	G-12
D982	G-13
D983	F-12
D984	F-13
D986	F-13
IC11	C-2
IC12	E-3
IC13	F-2
IC14	B-5
IC16	F-6
IC17	E-6
IC501	I-12
IC701	D-20
IC901	F-9
IC902	E-9
IC903	F-14
IC951	B-10
IC981	F-13
Q11	C-3
Q13	A-3
Q14	F-5
Q15	F-5
Q16	B-7
Q17	B-7
Q21	E-8
Q22	E-7
Q23	E-7
Q24	D-7
Q25	D-6
Q26	D-6
Q401	J-16
Q402	K-17
Q403	J-15
Q404	I-20
Q901	F-9
Q902	D-12
Q903	E-10
Q904	E-12
Q905	E-11



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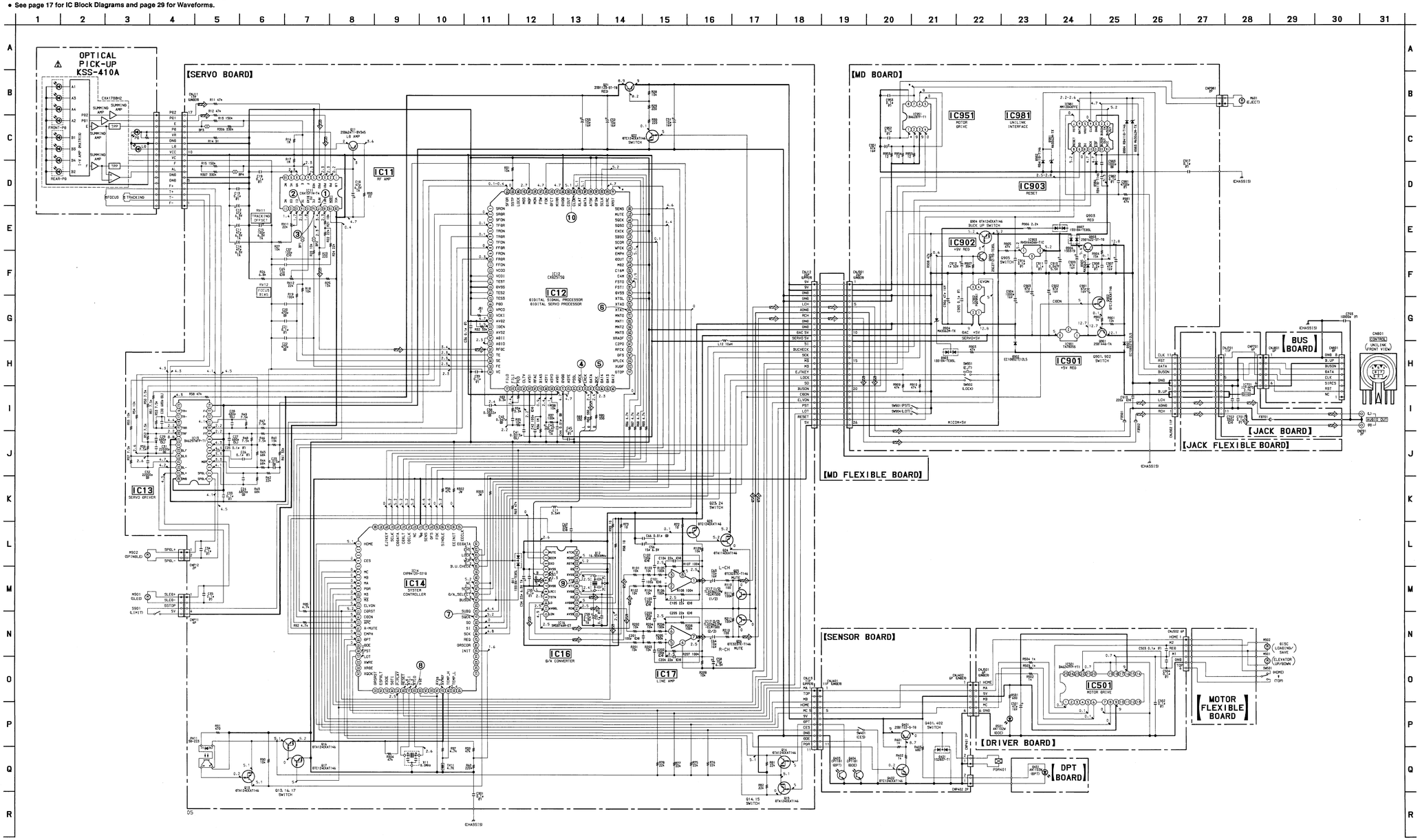
5-4. COMPACT DISC CHANGER SECTION SCHEMATIC DIAGRAM

• See page 17 for IC Block Diagrams and page 29 for Waveforms.



Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ▬▬ : B + Line.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- **Power voltage is fed from the CD changer controller.**
- **Voltages and waveforms are dc with respect to ground under no-signal conditions.**
  *** : Impossible to measure**
- **Voltages are taken with a VOM (10 MΩ/V).**
  Voltage variations may be noted due to normal production tolerances.
- **Waveforms are taken with a oscilloscope.**
  Voltage variations may be noted due to normal production tolerances.
- **Circled numbers refer to waveforms.**
- **Signal path.**
  ▻ : CD

Note on Printed Wiring Board:

- ○——○ : parts extracted from the component side.
- ● : Through hole.
- △ : internal component.
- ▒▒ : Pattern of the rear side.
- ▒▒ : Pattern from the side which enables seeing.

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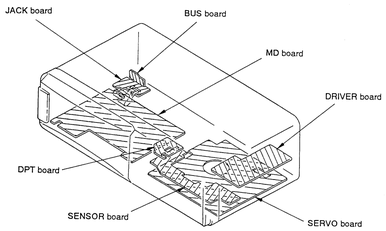
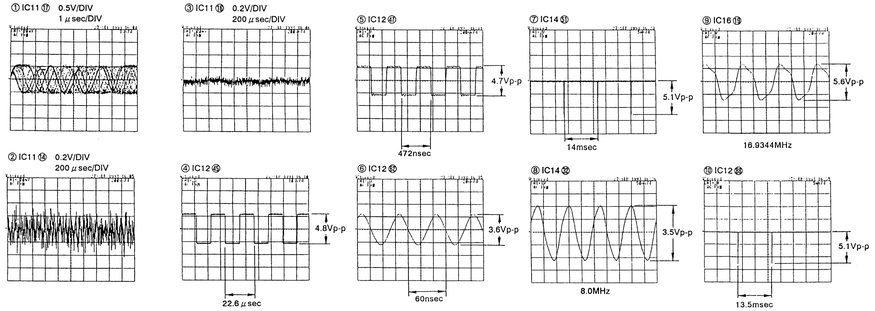
CDX-51/51RF

• Circuit Boards Location



• Waveforms



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ▬▬ : B + Line.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  ✳ : Impossible to measure
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : CD

• Semiconductor Lead Layouts

BA1405

LM7001

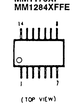
TA7805S

2SD1828

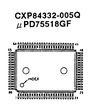
1SS319 (TE85R)

BA6247FP-Y

MM1175XF
MM1284XFFE



CXP84332-005Q
μPD75518GF



EC10DS2

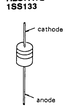
AN1102W-1-TR

BA6287F
TLV2362IPW-ELM1500

PQ09RA1

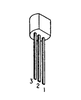
CPT-181S-C-TU

HZS7A1L
1SS133



BA6297AFP

PST600E



DTA114ES
DTA124ES
DTC114ES

RB411D
RD6.2M-B2

CXA1571N

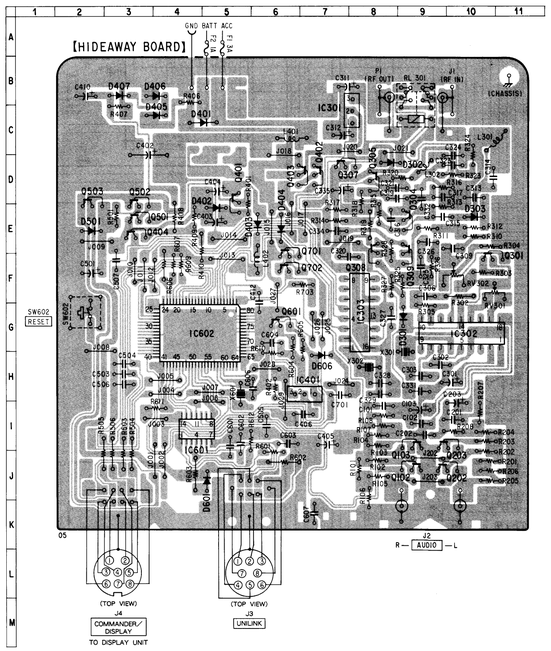
SM5874AM-ET

2SB1446

1SS184

CXD2515Q

5-5. HIDEAWAY SECTION PRINTED WIRING BOARD



• Semiconductor Location

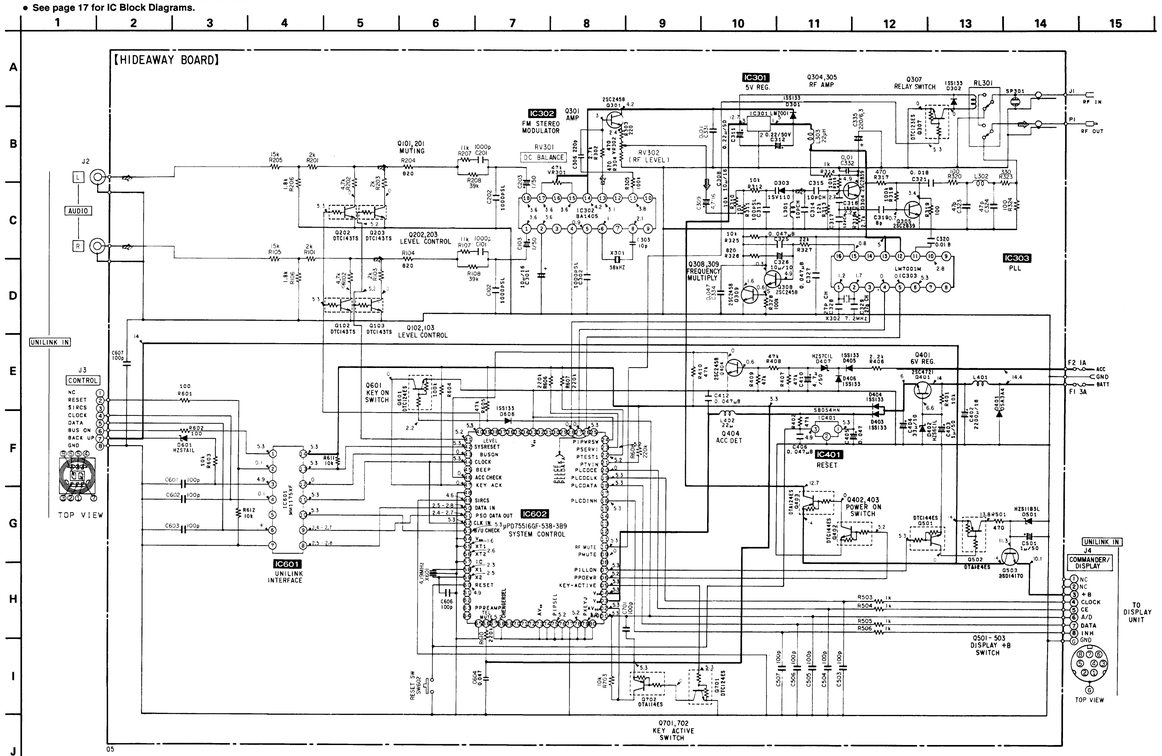
Ref. No.	Location
D301	G-9
D302	D-8
D303	E-10
D401	C-9
D402	E-5
D403	E-6
D404	E-6
D405	E-3
D406	D-3
D407	B-3
D501	C-2
D601	J-5
D606	H-7
IC301	C-7
IC302	G-10
IC303	G-8
IC401	H-7
IC601	I-4
IC602	G-4
Q102	J-9
Q103	J-9
Q202	J-10
Q203	J-10
Q301	F-10
Q304	E-9
Q305	D-8
Q307	D-7
Q308	E-8
Q309	E-9
Q401	D-5
Q402	D-7
Q403	D-7
Q404	E-4
Q501	C-3
Q502	D-3
Q503	D-2
Q601	G-6
Q701	E-6
Q702	F-6

Note:

- ○—— : parts extracted from the component side.

5-6. HIDEAWAY SECTION SCHEMATIC DIAGRAM

• See page 17 for IC Block Diagrams.



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5-7. IC PIN FUNCTION DESCRIPTION
IC14 CXP84120-021Q (SERVO BOARD)

Pin No.	Pin Name	I/O	Function
1	HOME	I	HOME sensor input
2	NC	—	Not used
3	NC	—	Not used
4	CES	I	CES sensor input
5	NC	—	Not used
6	MC	O	Motor control (M501, M502)
7	MB	O	Motor control (M501, M502)
8	MA	O	Motor control (M501, M502)
9	PGR	O	Plunger control
10	M3	O	EJECT motor control
11	$\overline{M3}$	O	EJECT motor control
12	ELVON	O	Elevator up/down, sensor power control
13	CDRST	O	Servo system reset. "L": Reset.
14	CDON	O	Servo system power on/off. "H": On.
15	$\overline{APC}$	O	Laser on/off control. "L": Laser on.
16	A-MUTE	O	Audio output mute
17	EMPH	O	Emphasis control
18	DPT	I	DPT sensor input
19	DOE	I	DOE sensor input. Disc is above pick-up: "L".
20	PST	I	PST sensor input
21	LOT	I	LOT sensor input
22	XWRE	—	Not used
23	XRDE	—	Not used
24	XQOK	—	Not used
25	GRSRST	—	Not used
26	ESPXLT	—	Not used
27	XSOE	—	Not used
28	SDTI	—	Not used
29	P. PLAY	I	Program play select. "H": Program play cannot be used.
30	$\overline{RESET}$	I	System reset. "L": Reset.
31	XTLI	I	System clock input
32	XTLO	O	System clock output
33	V_{SS}	—	Ground
34	NC	—	Not used
35	NC	—	Not used
36	AV_{SS}	—	A/D converter ground
37	AV_{REF}	I	A/D converter reference voltage input
38	TEMP_H	I	High temperature detection (For servo gain correction)
39	TEMP_L	—	Not used
40	NC	—	Not used

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Pin No.	Pin Name	I/O	Function
41	NC	—	Not used
42	NC	—	Not used
43	NC	—	Not used
44	NC	—	Not used
45	INIT	I	Initialize
46	GRSCOR	—	Not used
47	REQ	—	Not used
48	SCK	I	Serial clock input
49	SI	I	Serial data input
50	SO	O	Serial data output
51	SQCK	O	Clock for SUBQ read output
52	SUBQ	I	SUBQ data input
53	NC	—	Not used
54	BUSON	I	"L" during controller communicating
55	DIA_SELECT	I	Digital/Analog selection. "H": Analog.
56	SCOR	I	SCOR input
57	NC	—	Not used
58	NC	—	Not used
59	NC	—	Not used
60	B. U. CHECK	I	BACK UP detection input. "H": BACK UP on.
61	WUP	I	External timer/counter input
62	LOCK	I	During locking magazine: "H".
63	EHS	I	Elevator location detection
64	EEDATA	I/O	External 16 bits timer/counter input/output
65	EECLK	O	14 bits PWM output
66	EEINIT	I	EEPROM initializing input. "H": Format.
67	NC	—	Not used
68	SINGLE	I	Not used
69	FOK	I	FOK input
70	GFS	I	GFS input
71	SENS	I	SENS input
72	V_{DD}	—	Power supply
73	NC	—	Not used
74	CDCLK	O	Servo system control output
75	CDXLT	O	Servo system control output
76	CDDATA	O	Servo system control output
77	SCLK	O	Clock for serial communication output
78	EJTKEY	I	EJECT key input. "H": On.
79	NC	—	Not used
80	NC	—	Not used

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(DRIVER BOARD) IC501 (BA6247FP-Y) MOTOR DRIVER IC OPERATION

The elevator motor connected between Pin ② and Pin ⑩ of IC501 is as M501, and the disc loading/saving motor connected between Pin ③ and Pin ⑩ of IC501 is as M502.

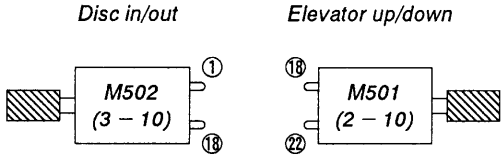
When the IC port logic is Pin ② > Pin ⑩, Pin ③ > Pin ⑩, the rotating direction of M501 and M502 becomes normal.

ROTATION TRUTH TABLE

① When MB = MC, both M501 and M502 are stop. (MA value is free.)

② When MB ≠ MC:

MA Pin ⑧	MB Pin ⑥	MC Pin ⑤	M501	M502	Motor Terminal			Operation
					㉒	①	⑱	
L	L	H	Reverse	Stop	L	OPEN	H	Elevator UP
H	L	H	Normal	Stop	H	OPEN	L	Elevator DOWN
L	H	L	Stop	Reverse	OPEN	L	H	Disc load
H	H	L	Stop	Normal	OPEN	H	L	Disc save



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HIDEAWAY BOARD IC602 μPD75516GF-538-3B9

Pin No.	Port No.	Port Name	(I/O)	Description
1	AN0	KEY	I	AD BUTTON INPUT
2	AV_{REF}		–	REFERENCE POWER SUPPLY
3	V_{DD}		–	POWER SUPPLY
4	V_{DD}		–	POWER SUPPLY
5	P113	KEY ACTIVE	O	POWER ON/$\overline{OFF}$ FOR AD BUTTON
6	P112	POWER	O	USED FOR REMOTE OUT
7	P111	ILLUMI	O	POWER SUPPLY ON/$\overline{OFF}$ TO DISPLAY UNIT
8	P110	COLOR	O	COLOR SELECTION PORT $\overline{AMBER}$/GREEN (OPEN)
9	P103	MUTE	O	MUTE PORT ON/$\overline{OFF}$ ON SOURCE SELECTION (OPEN)
10	P102	RF MUTE	O	RF MUTE
11	P101		O	NOT USED. (OPEN)
12	P100		O	NOT USED. (OPEN)
13	P93	REM_ANT	O	OUTPUT PORT FOR REMOTE ANTENNA (OPEN)
14	P92		O	NOT USED. (OPEN)
15	P91		O	NOT USED. (OPEN)
16	P90	LCD INH	O	INH FOR LCD
17			I	NOT USED. (OPEN)
18	SO1	LCD DATA	O	DATA FOR LCD
19	$\overline{SCK1}$	LCD CLK	O	CLOCK FOR LCD
20	PPO	LD CE	O	CE FOR LCD
21	P73	REP-KEY	I	$\overline{THERE\ IS\ REP\text{-}KEY}$/NOT INITIAL IN ($V_{DD}$)
22	P72	PTEST1	I	TEST MODE INITIAL IN $\overline{NOR}$/TEST
23	P71	RSERV1	I	SERVICE MODE INITIAL IN $\overline{NOR}$/TEST
24	P70	MATCH	I	NOT USED. (GND)
25	P63		O	NOT USED. (OPEN)
26	P62	PLL DATA	O	PLL DATA
27	P61	PLL CLK	O	PLL CLK
28	P60	PLL CE	O	PLL CE
29	P53		O	NOT USED. (OPEN)
30	P52		O	NOT USED. (OPEN)
31	P51		O	NOT USED. (OPEN)
32	P50		O	NOT USED. (OPEN)
33	V_{SS}		–	GND
34	P43		O	NOT USED. (OPEN)
35	P42		O	NOT USED. (OPEN)
36	P41		O	NOT USED. (OPEN)
37	P40		O	NOT USED. (OPEN)
38	P33		O	NOT USED. (OPEN)
39	P32		O	NOT USED. (OPEN)
40	P31	LEVEL	O	OUTPUT LEVEL SELECT

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Pin No.	Port No.	Port Name	(I/O)	Description
41	P30	LEVEL	O	OUTPUT LEVEL SELECT
42	P23	RESET OUT	O	UNI LINK RESET PORT
43	P22	$\overline{\text{BUS ON}}$	O	UNI LINK BUS ON
44	P21	SCLK OUT	O	UNI LINK CLK OUT
45	P20	BEEP	O	BEEP (KEY ON BEEP) OUT (OPEN)
46	P13	ACC CHECK	I	ACC CHECK IN
47	P12	KEY ACK	I	A/D INPUT BUTTON ON: HIGH
48	P11	CAS_REM	I	CASSETE REMOTE IN (GND)
49	P10	SIRCS	I	SIRCS INPUT FOR REMOTE COMMANDER RECEIVER (GND)
50	SI0	SI	I	UNI LINK DATA IN
51	SO0	SO	O	UNI LINK DATA OUT
52	$\overline{\text{SLK0}}$	SCLK IN	I	UNI LINK CLK IN
53	P00	B.U CK	I	PORT FOR BACK-UP CHECK
54	Vss		–	GND
55	XT1		O	CLOCK OUT (32kHz) (GND)
56	XT2		I	CLOCK IN (32kHz) (OPEN)
57	IC		I	(GND)
58	X1		O	CLOCK OUT (4.19 MHz)
59	X2		I	CLOCK IN (4.19 MHz)
60	RESET		I	RESET IN
61	P143		I	NOT USED. (GND)
62	P142		I	NOT USED. (GND)
63	P141		I	NOT USED. (OPEN)
64	P140		I	NOT USED. (OPEN)
65	P133		I	NOT USED. (GND)
66	P132	$\overline{\text{TEL MUTE}}$	I	TELEPHONE MUTE (V_{DD})
67	P131		I	NOT USED. (GND)
68	P130		I	NOT USED. (GND)
69	P123		O	NOT USED. (OPEN)
70	P122		O	NOT USED. (OPEN)
71	P121		O	NOT USED. (OPEN)
72	P120		O	NOT USED. (OPEN)
73	AVss		–	GND
74	P153		I	NOT USED. (GND)
75	P152	P/S SW	I	POWER SELECT SW $\overline{\text{THERE IS ACC}}$/NOT (GND)
76	P151		I	NOT USED. (GND)
77	P150		I	NOT USED. (GND)
78	AN3		I	NOT USED. (GND)
79	AN2		I	NOT USED. (GND)
80	AN1		I	NOT USED. (GND)

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SEE ADDITIONAL INFORMATION

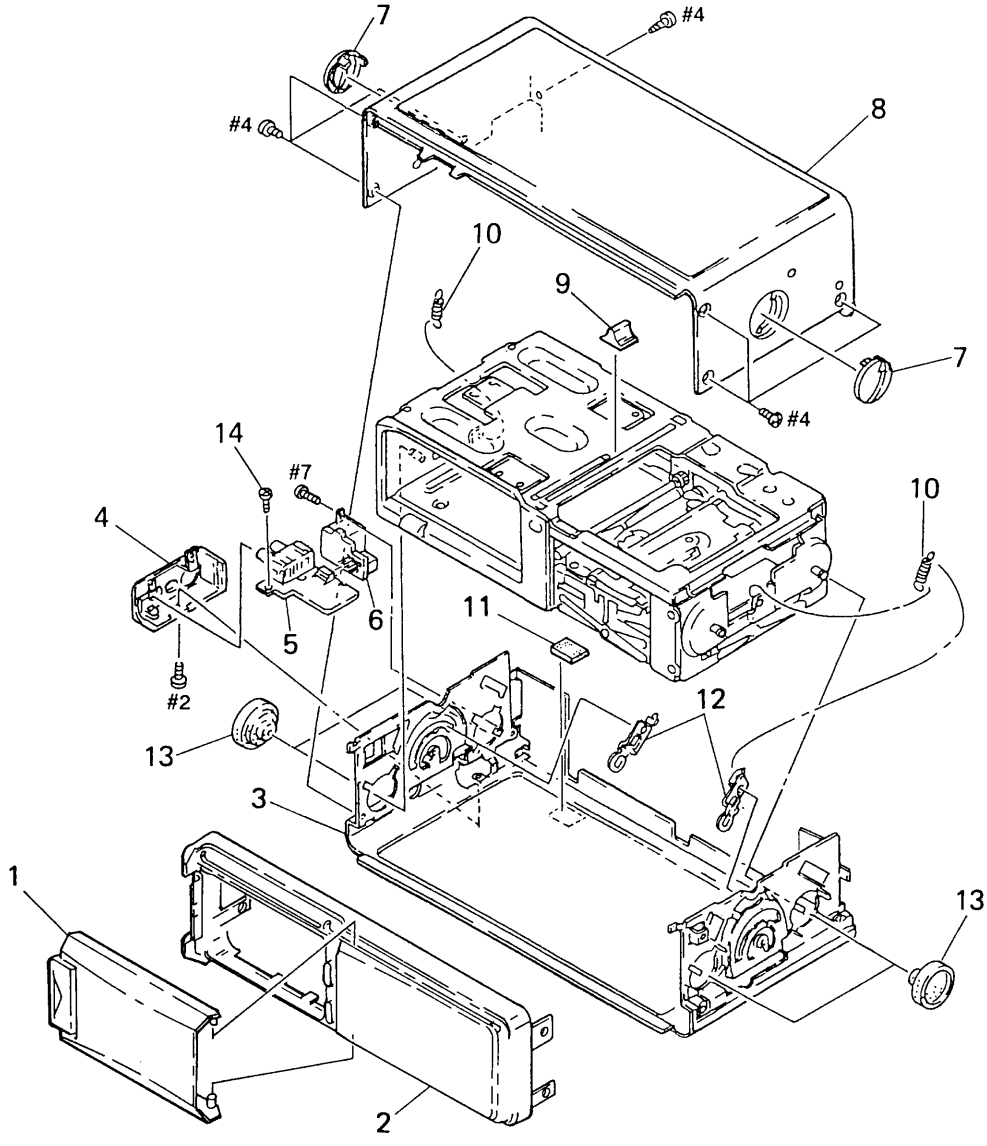
SECTION 6
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le neméro spécifié.

(1) CASE SECTION



Ref. No.	Part No.	Description	Remark
1	X-3369-246-1	DOOR ASSY	
2	3-918-168-01	PANEL, FRONT	
* 3	3-919-139-01	CASE (LOWER)	
4	3-918-171-01	COVER (PIN)	
* 5	1-655-450-11	JACK BOARD	
* 6	1-655-451-11	BUS BOARD	
7	3-375-504-21	LEVER (SPRING)	

Ref. No.	Part No.	Description	Remark
* 8	3-919-138-01	CASE (UPPER)	
9	3-348-750-01	CUSHION (DAMPER)	
10	3-923-342-01	SPRING (FL2), TENSION	
11	3-350-124-01	CUSHION (EJECT)	
12	X-3364-882-1	ARM (SPRING) ASSY	
13	3-375-501-01	DAMPER (CNG)	
14	4-908-792-31	SCREW (B2)	

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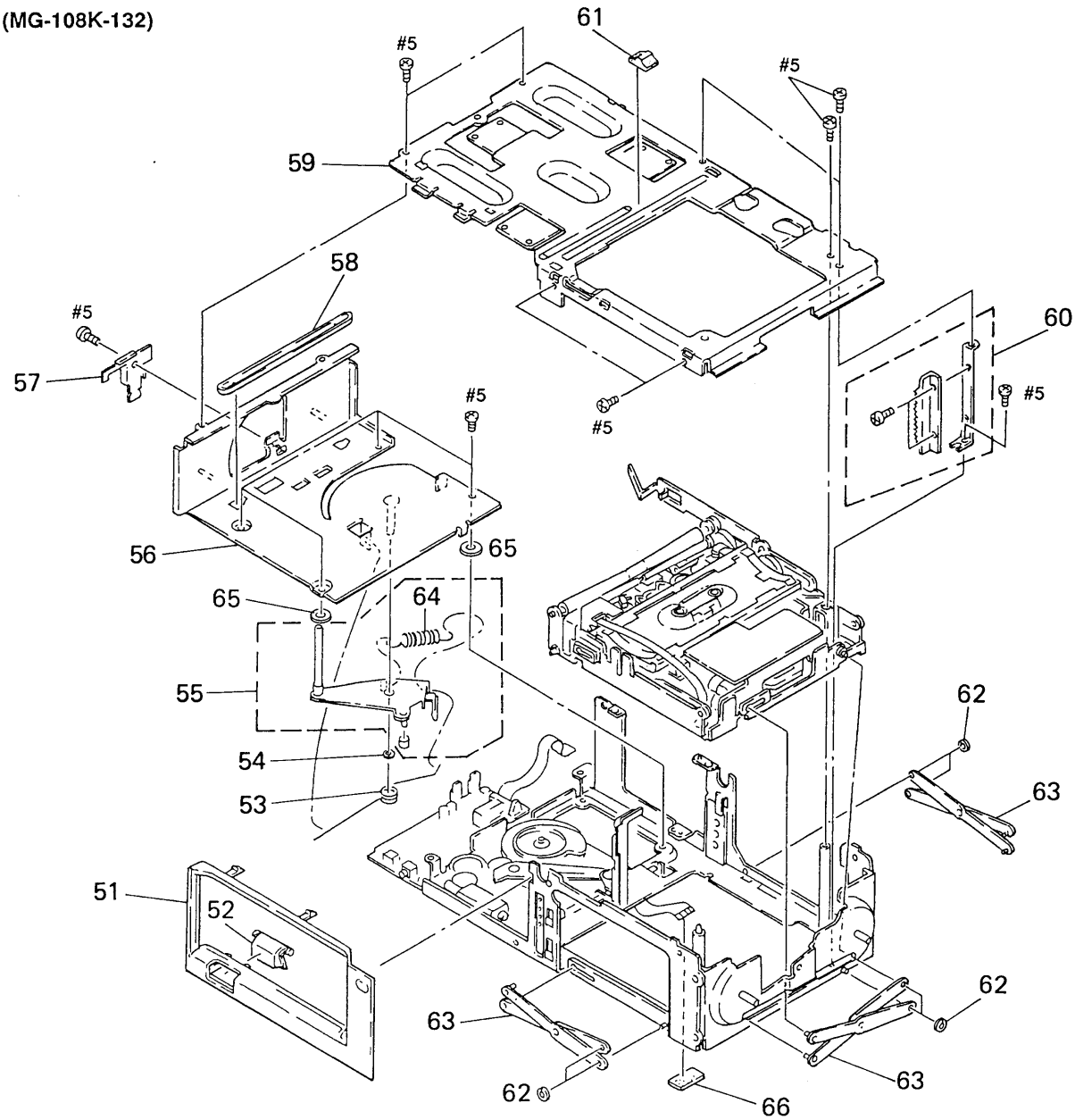
(2) MECHANISM DECK SECTION-1 (MG-108K-132)



Ref. No.	Part No.	Description	Remark
* 51	3-388-593-01	ESCUTCHEON (2)	
52	3-388-592-01	BUTTON (EJ2) (⏏)	
53	3-364-478-01	SPRING (EJ)	
54	3-911-104-01	WASHER	
55	X-3367-988-1	LEVER (NEJ) ASSY	
* 56	X-3367-987-1	CHASSIS (MZ2) ASSY	
* 57	3-918-830-11	BRACKET (TR)	
* 58	3-911-106-01	GUIDE (MZ2)	
* 59	X-3367-978-1	COVER (MD2) ASSY	
60	X-3369-133-1	RACK ASSY (2)	
61	3-348-750-01	CUSHION (DAMPER)	
62	3-377-719-01	WASHER, POLYETHYLENE	
63	X-3369-132-1	LEVER (X) ASSY (2)	
64	3-568-814-00	SPRING, TENSION	
* 65	3-360-121-11	SPACER (W)	
66	9-911-844-XX	CUSHION, BATTRY	

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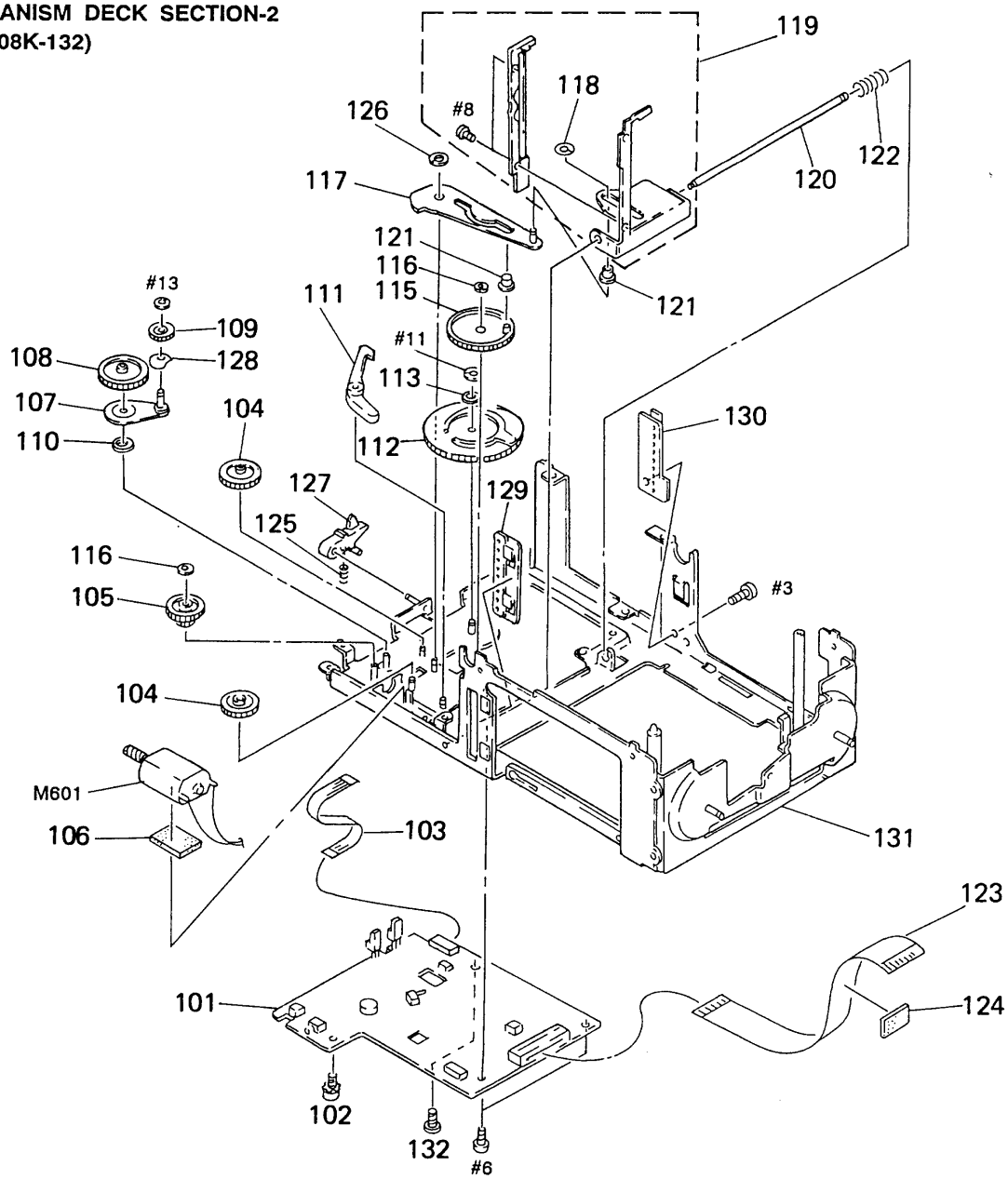
(3) MECHANISM DECK SECTION-2 (MG-108K-132)



Ref. No.	Part No.	Description	Remark
* 101	A-3298-465-A	MD BOARD, COMPLETE	
102	3-376-464-11	SCREW(+PTT 2.6X6), GROUND POINT	
103	1-642-838-11	JACK FLEXIBLE BOARD	
104	3-911-076-02	GEAR (MS)	
105	3-911-090-01	WHEEL (B2), WORM	
106	3-911-105-11	CUSHION (M)	
107	X-3364-526-2	LEVER (KMZ) ASSY	
108	3-911-074-02	GEAR (L2)	
109	3-912-977-01	GEAR (KS2)	
110	3-316-308-00	WASHER	
111	3-911-083-01	ARM (DR)	
112	3-912-309-01	GEAR (EJ4), CAM	
113	3-373-013-01	SPRING (EJ CAM)	
115	3-911-096-01	GEAR (DR2)	
116	3-377-719-11	WASHER, POLYETHYLENE	
117	X-3367-981-1	LEVER (DR2) ASSY	

Ref. No.	Part No.	Description	Remark
118	3-379-490-11	WASHER, POLYETHYLENE	
119	X-3367-980-1	SLIDER (DR2) ASSY	
* 120	3-911-093-01	SHAFT (SDR2)	
121	3-364-506-01	ROLLER (SL)	
122	3-568-315-01	SPRING, COMPRESSION	
123	1-655-867-11	MD FLEXIBLE BOARD	
124	9-911-844-XX	CUSHION, BATTERY	
125	3-370-385-01	SPRING, COMPRESSION	
126	3-377-720-01	WASHER, POLYETHYLENE	
* 127	3-908-794-01	LEVER (TZ) (MZ LOOK)	
128	3-364-387-11	SPRING (F)	
129	3-375-706-03	CATCHER (F)	
130	3-375-707-02	CATCHER (B)	
* 131	X-3367-979-1	CHASSIS (MD2) ASSY	
132	3-913-406-01	SCREW (GROUND)	
M601	X-3367-983-1	MOTOR ASSY (EJECT)	

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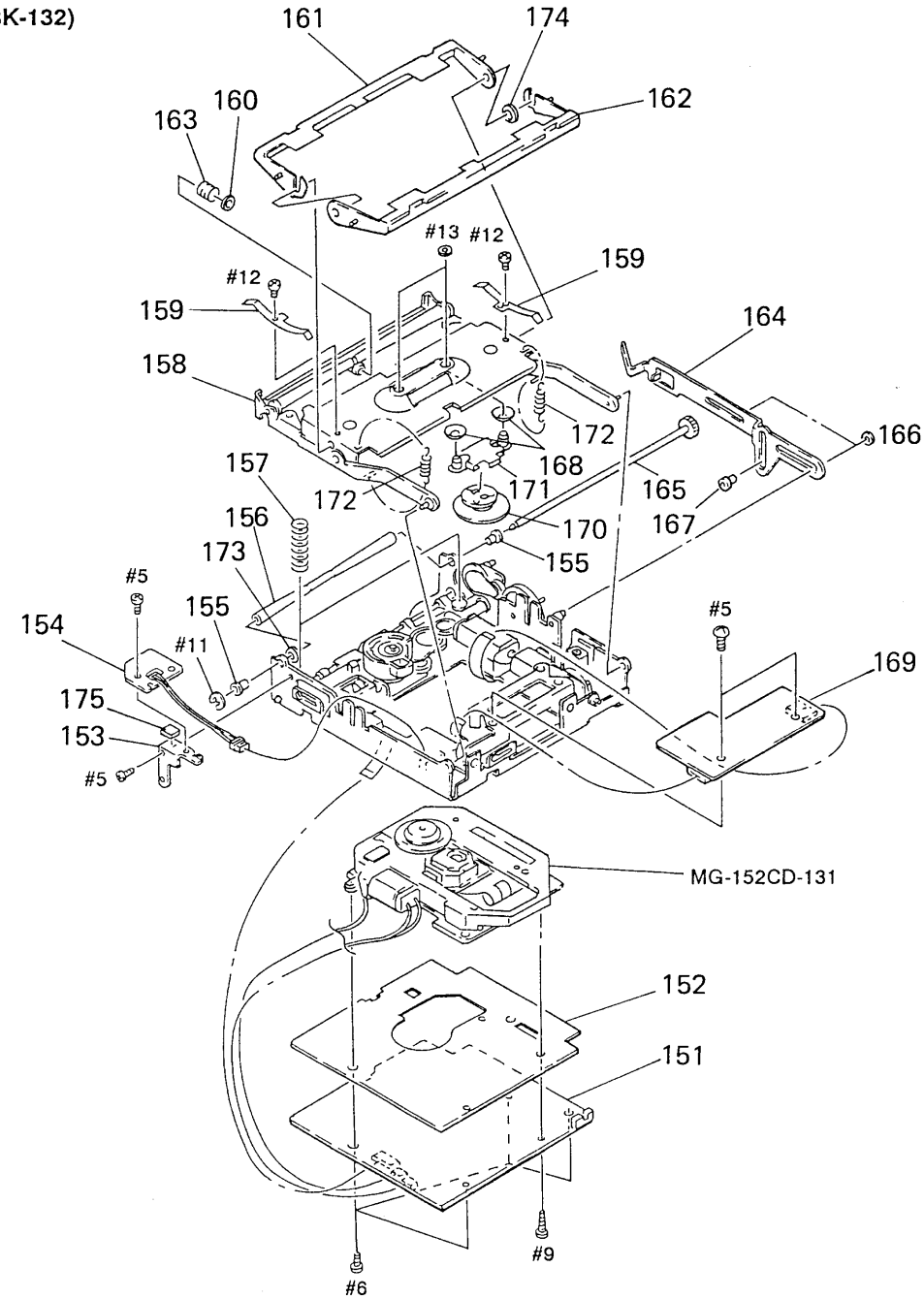
(4) MECHANISM DECK SECTION-3 (MG-108K-132)



Ref. No.	Part No.	Description	Remark
* 151	A-3298-466-A	SERVO BOARD, COMPLETE	
* 152	3-908-218-01	SHEET (EV), INSULATING	
* 153	3-908-640-01	BRACKET (DPT2)	
* 154	1-650-649-11	DPT BOARD	
155	3-364-421-01	BEARING (ROLLER)	
156	3-323-231-11	ROLLER (LOWER)	
157	3-364-508-01	SPRING, COMPRESSION	
158	X-3369-631-1	ARM (NR) ASSY	
159	3-375-290-06	SPRING (DH)	
160	3-341-752-11	WASHER, POLYETHYLENE	
161	X-3369-226-1	ARM (DH) ASSY (2)	
162	X-3369-228-1	ARM (DH2) ASSY (2)	
163	3-364-504-11	ROLLER (RA)	
* 164	3-364-380-11	LEVER, SLIDE	
165	X-3369-524-1	GEAR ASSY (2), ROLLER	
166	3-377-720-01	WASHER, POLYETHYLENE	
167	3-364-506-01	ROLLER (SL)	
168	3-908-497-01	SPRING (GALVANIZED IRON)	
* 169	1-650-650-11	DRIVER BOARD	
170	3-380-759-02	PLATE (C), CHUCK	
171	X-3369-227-1	BRACKET (CP) ASSY (2)	
172	3-371-504-01	SPRING, TENSION	
173	3-701-438-01	WASHER	
174	3-380-963-11	SPACER	
* 175	3-916-162-01	SPACER	

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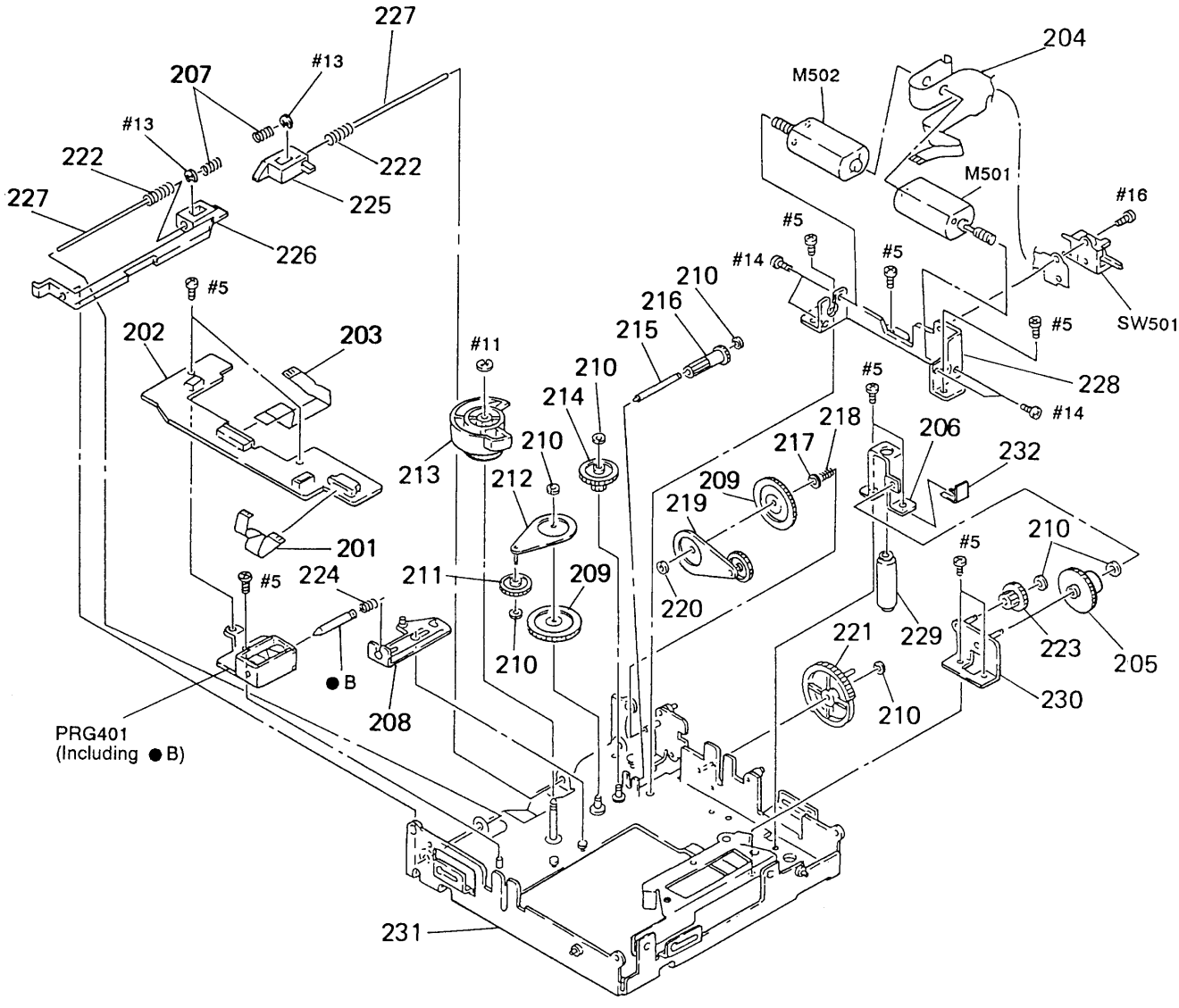
(5) MECHANISM DECK SECTION-4
(MG-108K-132)



Ref. No.	Part No.	Description	Remark
201	1-751-193-11	CABLE, FLEXIBLE FLAT (6 CORE)	
* 202	1-650-698-11	SENSOR BOARD	
203	1-648-660-11	CABLE, FLEXIBLE FLAT (11 CORE)	
204	1-643-083-11	MOTOR FLEXIBLE BOARD	
205	3-364-424-02	GEAR (EV)	
206	3-375-551-01	BRACKET (BEARING B)	
207	3-485-239-00	SPRING, COMPRESSION	
208	X-3367-985-1	SLIDER (KR2) ASSY	
209	3-364-417-01	GEAR (L)	
210	3-377-719-01	WASHER, POLYETHYLENE	
211	3-364-422-01	GEAR (K)	
212	X-3364-529-1	LEVER (KRA) ASSY	
213	3-364-419-01	GEAR (R), CAM	
214	3-364-505-01	WHEEL (C), WORM	
215	3-911-088-01	SHAFT (WWR2)	
216	3-911-089-01	WHEEL (R2), WORM	
217	3-701-441-11	WASHER	
218	3-388-479-01	SPRING, COMPRESSION	
219	X-3364-535-3	GEAR (KW) ASSY	
220	3-377-719-11	WASHER, POLYETHYLENE	
221	3-364-418-04	GEAR (SL)	
222	3-308-717-00	SPRING, COMPRESSION	
223	3-910-522-01	WHEEL (2), WORM	
224	3-353-804-01	SPRING, COMPRESSION	
225	3-911-102-01	LOCK (CLAW B)	
226	3-911-087-01	LOCK (CLAW)	
227	3-911-097-01	SHAFT (LOCK 2)	
228	3-912-770-01	BRACKET (EVM2)	
229	3-375-791-02	BEARING (EV)	
230	X-3362-340-7	BRACKET (EV GEAR) ASSY	
* 231	X-3367-984-1	CHASSIS (EV2) ASSY	
232	3-336-274-11	SHIM	
M501	X-3367-983-1	MOTOR ASSY (ELEVATOR UP/DOWN)	
M502	X-3368-665-1	MOTOR (N) ASSY (DISC LOAD/SAVE)	
PGR401	1-454-580-21	SOLENOID, PLUNGER	
SW501	1-571-300-31	SWITCH, ROTARY (HOME/TOP)	

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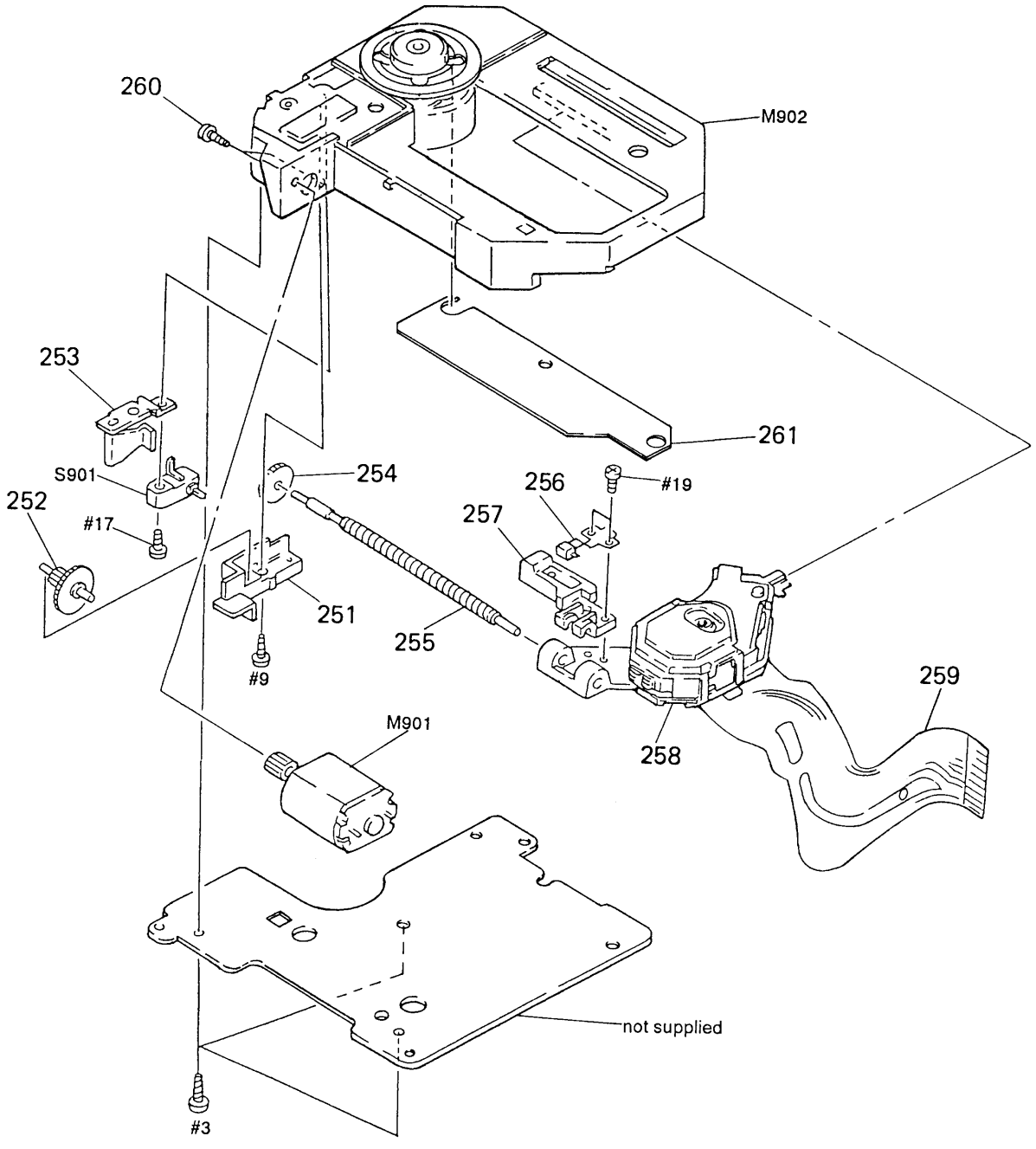
(6) OPTICAL PICK-UP BLOCK SECTION (MG-152CD-131)



Ref. No.	Part No.	Description	Remark
251	3-908-097-01	HOLDER (GEAR)	
252	3-908-091-01	GEAR (MID)	
253	3-908-093-01	SPRING (THRUST RETAINER)	
254	3-908-092-01	GEAR (SLED)	
255	3-914-664-01	SHAFT (SLED 2)	
256	3-384-920-01	RETAINER (SL FEED)	
257	3-908-098-01	GEAR (SL FEED)	

Ref. No.	Part No.	Description	Remark
⚠258	8-848-327-11	DEVICE, OPTICAL KSS-410A	
259	1-653-962-11	FLEXIBLE BOARD	
260	3-910-519-01	SCREW (SL)	
* 261	3-919-984-03	SHEET (OP)	
M901	X-3367-782-1	SLED MOTOR ASSY	
M902	A-3252-844-A	MOTOR (SP) ASSY (SPINDLE)	
S901	1-570-771-11	SWITCH (LIMIT)	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le neméro spécifié.

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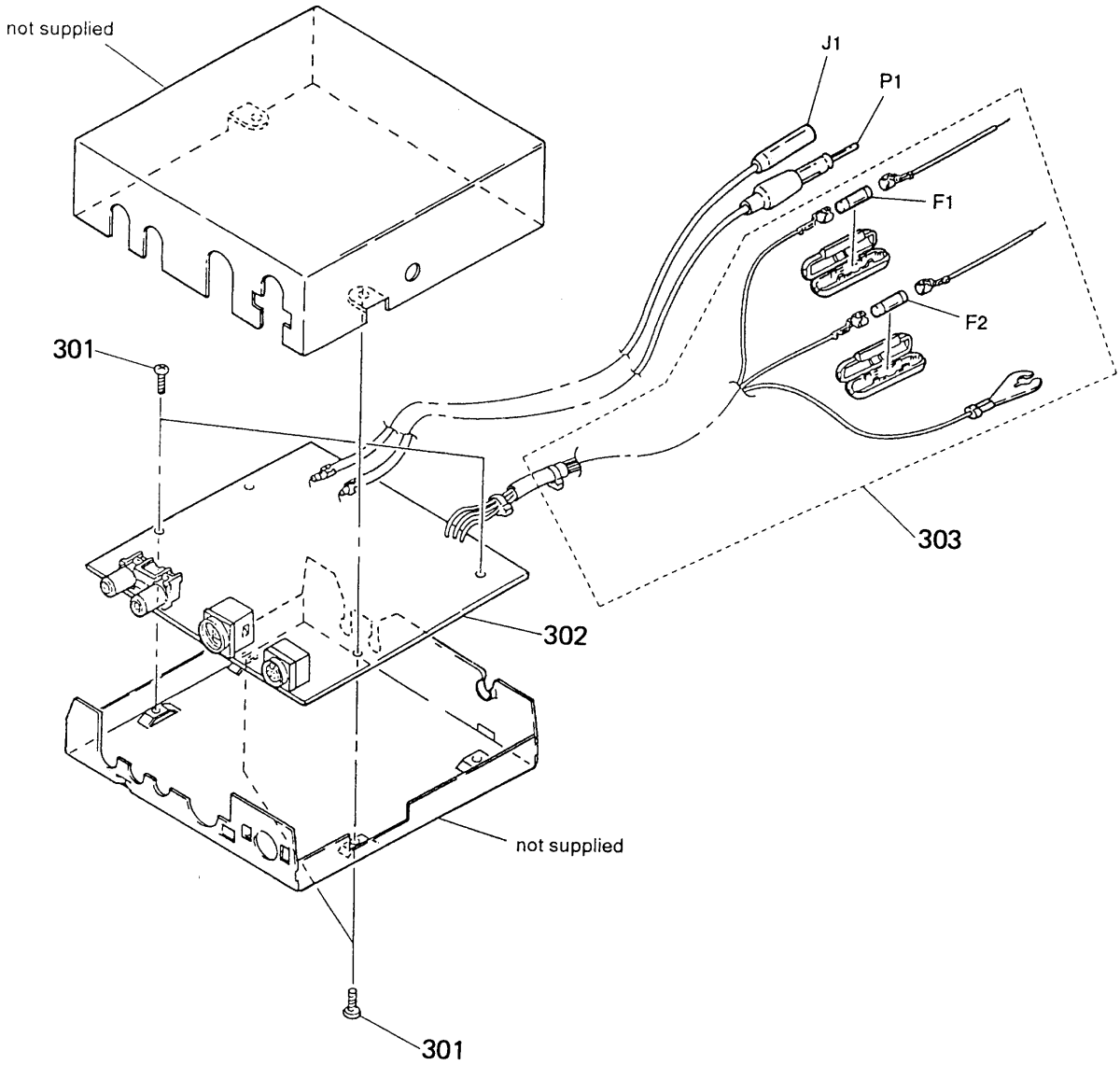
(7) HIDEAWAY UNIT SECTION (CDX-51RF ONLY)



Ref. No.	Part No.	Description	Remark
301	9-909-573-01	TUP SCREW	
302	9-909-574-01	HIDEAWAY BOARD, COMPLETE	
303	9-906-860-01	POWER SUPPLY CABLE	
F1	1-532-419-00	FUSE (3A 25V)	
F2	1-532-360-XX	FUSE (1A)	
J1	9-905-317-01	ANT CABLE (J) (RF-IN)	
P1	9-905-316-01	ANT CABLE (J) (RF-OUT)	

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SECTION 7
ELECTRICAL PARTS LIST

BUS DPT DRIVER HIDEAWAY

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviations CND : Canadian
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description			Remark
*	1-655-451-11	BUS BOARD			
		*********			
		< CONNECTOR >			
CN801	1-580-907-21	PLUG, CONNECTOR (CONTROL)			
* CNJ801	1-566-968-11	HOUSING, CONNECTOR(PC BOARD)6P			
**********					
*	1-650-649-11	DPT BOARD			
		*********			
		< DIODE >			
D451	8-719-045-93	DIODE AN1102W-1-TR (DPT)			
**********					
*	1-650-650-11	DRIVER BOARD			
		**********			
		< CAPACITOR >			
C501	1-126-204-11	ELECT CHIP	47uF	20%	16V
C502	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C503	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C504	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CNJ501	1-764-436-21	CONNECTOR, FPC 6P			
CNJ502	1-764-621-21	CONNECTOR, FFC/FPC (ZIF) 6P			
		< DIODE >			
D501	8-719-045-93	DIODE AN1102W-1-TR (DOE)			
		< IC >			
IC501	8-759-070-68	IC BA6247FP-Y			
		< JUMPER RESISTOR >			
JR501	1-216-296-00	METAL CHIP	0	5%	1/8W
JR502	1-216-296-00	METAL CHIP	0	5%	1/8W
JR503	1-216-296-00	METAL CHIP	0	5%	1/8W
JR504	1-216-296-00	METAL CHIP	0	5%	1/8W
JR505	1-216-296-00	METAL CHIP	0	5%	1/8W
JR506	1-216-296-00	METAL CHIP	0	5%	1/8W
		< RESISTOR >			
R501	1-216-045-00	METAL CHIP	680	5%	1/10W
R502	1-216-049-00	METAL CHIP	1K	5%	1/10W
R503	1-216-049-00	METAL CHIP	1K	5%	1/10W
R504	1-216-049-00	METAL CHIP	1K	5%	1/10W
**********					
	9-909-574-01	HIDEAWAY BOARD, COMPLETE (CDX-51RF ONLY)			
		**********			
		< CAPACITOR >			
C101	1-102-074-00	CERAMIC	0.001uF	10%	50V
C102	1-102-074-00	CERAMIC	0.001uF	10%	50V
C103	1-126-301-11	ELECT	1uF	20%	50V
C201	1-102-074-00	CERAMIC	0.001uF	10%	50V
C202	1-102-074-00	CERAMIC	0.001uF	10%	50V
C203	1-126-301-11	ELECT	1uF	20%	50V
C301	1-126-157-11	ELECT	10uF	20%	16V
C302	1-102-074-00	CERAMIC	0.001uF	10%	50V
C303	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C306	1-102-978-00	CERAMIC	220PF	5%	50V
C309	1-126-288-11	ELECT	4.7uF	20%	25V
C311	1-124-464-11	ELECT	0.22uF	20%	50V
C312	1-124-464-11	ELECT	0.22uF	20%	50V
C313	1-102-973-00	CERAMIC	100PF	5%	50V
C314	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C315	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C316	1-102-951-00	CERAMIC	15PF	5%	50V
C317	1-102-949-00	CERAMIC	12PF	5%	50V
C319	1-102-945-00	CERAMIC	8PF	0.5PF	50V
C320	1-102-129-00	CERAMIC	0.01uF	10%	50V
C321	1-102-129-00	CERAMIC	0.01uF	10%	50V
C323	1-101-880-11	CERAMIC	47PF	5%	50V
C324	1-101-880-11	CERAMIC	47PF	5%	50V
C325	1-101-006-00	CERAMIC	0.047uF		50V
C326	1-126-157-11	ELECT	10uF	20%	16V
C327	1-101-006-00	CERAMIC	0.047uF		50V
C328	1-102-961-00	CERAMIC	27PF	5%	50V

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HIDEAWAY

Ref. No.	Part No.	Description			Remark
C329	1-102-961-00	CERAMIC	27PF	5%	50V
C331	1-102-129-00	CERAMIC	0.01uF	10%	50V
C332	1-102-129-00	CERAMIC	0.01uF	10%	50V
C334	1-101-006-00	CERAMIC	0.047uF		50V
C335	1-123-296-11	ELECT	220uF	20%	6.3V
C402	1-126-768-11	ELECT	2200uF	20%	16V
C403	1-126-301-11	ELECT	1uF	20%	50V
C404	1-124-229-00	ELECT	33uF	20%	10V
C405	1-126-157-11	ELECT	10uF	20%	16V
C406	1-101-006-00	CERAMIC	0.047uF		50V
C410	1-126-163-11	ELECT	4.7uF	20%	50V
C412	1-101-006-00	CERAMIC	0.047uF		50V
C501	1-126-301-11	ELECT	1uF	20%	50V
C503	1-102-973-00	CERAMIC	100PF	5%	50V
C504	1-102-973-00	CERAMIC	100PF	5%	50V
C505	1-102-973-00	CERAMIC	100PF	5%	50V
C506	1-102-973-00	CERAMIC	100PF	5%	50V
C507	1-102-973-00	CERAMIC	100PF	5%	50V
C601	1-102-973-00	CERAMIC	100PF	5%	50V
C602	1-102-973-00	CERAMIC	100PF	5%	50V
C603	1-102-973-00	CERAMIC	100PF	5%	50V
C604	1-101-006-00	CERAMIC	0.047uF		50V
C606	1-102-973-00	CERAMIC	100PF	5%	50V
C607	1-102-973-00	CERAMIC	100PF	5%	50V
C701	1-102-973-00	CERAMIC	100PF	5%	50V

< DIODE >

D301	8-719-901-33	DIODE	1SS133
D302	8-719-901-33	DIODE	1SS133
D303	8-905-312-01	DIODE	1SV110
D401	8-719-200-59	DIODE	11ES2
D402	8-719-933-39	DIODE	HZS6C1L
D403	8-719-901-33	DIODE	1SS133
D404	8-719-901-33	DIODE	1SS133
D405	8-719-901-33	DIODE	1SS133
D406	8-719-901-33	DIODE	1SS133
D407	8-719-933-49	DIODE	HZS7C1L
D501	8-719-933-51	DIODE	HZS11C2L
D601	8-719-933-43	DIODE	HZS7A1L
D606	8-719-901-33	DIODE	1SS133

< FUSE >

F1	1-532-419-00	FUSE	(3A 25V)
F2	1-532-360-XX	FUSE	(1A)

< IC >

IC301	8-759-278-05	IC	TA78L005AP
IC302	9-909-571-01	IC	BA1405
IC303	8-759-323-81	IC	LM7001
IC401	8-759-165-82	IC	PST600E
IC601	8-759-096-15	IC	MM1175XF
IC602	8-759-257-18	IC	uPD75516GF-538-3B9

< JACK >

J2	9-905-315-01	PIN JACK (2P) (UNILINK IN:AUDIO L/R)
J3	1-580-907-11	PLUG, CONNECTOR (UNILINK IN:CONTROL)
J4	1-563-486-11	SOCKET, CONNECTOR (COMMANDER/DISPLAY)

< COIL >

L301	9-909-572-01	TRANSFORMER
L302		not Supplied
L401	1-421-359-00	COIL, CHOKE
L402	1-410-513-11	MICRO INDUCTOR 2.2uH

< TRANSISTOR >

Q102	8-729-900-74	TRANSISTOR	DTC143TS
Q103	8-729-900-74	TRANSISTOR	DTC143TS
Q202	8-729-900-74	TRANSISTOR	DTC143TS
Q203	8-729-900-74	TRANSISTOR	DTC143TS
Q301	8-729-119-83	TRANSISTOR	2SC2785-HFE
Q304	8-729-883-99	TRANSISTOR	2SC2839
Q305	8-729-883-99	TRANSISTOR	2SC2839
Q307	8-729-925-51	TRANSISTOR	DTC123ES
Q308	8-729-119-83	TRANSISTOR	2SC2785-HFE
Q309	8-729-119-83	TRANSISTOR	2SC2785-HFE
Q401	9-909-570-01	TRANSISTOR	2SC4721
Q402	8-729-900-89	TRANSISTOR	DTC144ES
Q403	8-729-900-63	TRANSISTOR	DTA124ES
Q404	8-729-119-83	TRANSISTOR	2SC2785-HFE
Q501	8-729-900-89	TRANSISTOR	DTC144ES
Q502	8-729-900-63	TRANSISTOR	DTA124ES
Q503	9-909-895-01	TRANSISTOR	2SD1828
Q601	8-729-900-63	TRANSISTOR	DTA124ES
Q701	8-729-900-89	TRANSISTOR	DTC144ES
Q702	8-729-900-61	TRANSISTOR	DTC114ES

< RESISTOR >

R101	1-247-838-11	CARBON	2K	5%	1/4W
R102	1-247-847-11	CARBON	4.7K	5%	1/4W
R103	1-247-838-11	CARBON	2K	5%	1/4W
R104	1-249-416-11	CARBON	820	5%	1/4W
R105	1-249-431-11	CARBON	15K	5%	1/4W
R106	1-249-420-11	CARBON	1.8K	5%	1/4W
R107	1-247-856-00	CARBON	11K	5%	1/4W
R108	1-249-436-11	CARBON	39K	5%	1/4W
R201	1-247-838-11	CARBON	2K	5%	1/4W
R202	1-247-847-11	CARBON	4.7K	5%	1/4W

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Ref.No.	Part No.	Description			Remark
R203	1-247-838-11	CARBON	2K	5%	1/4W
R204	1-249-416-11	CARBON	820	5%	1/4W
R205	1-249-431-11	CARBON	15K	5%	1/4W
R206	1-247-835-11	CARBON	1.5K	5%	1/4W
R207	1-247-856-00	CARBON	11K	5%	1/4W
R208	1-249-436-11	CARBON	39K	5%	1/4W
R302	1-249-422-11	CARBON	2.7K	5%	1/4W
R303	1-249-409-11	CARBON	220	5%	1/4W
R304	1-249-413-11	CARBON	470	5%	1/4W
R305	1-247-879-11	CARBON	100K	5%	1/4W
R310	1-247-855-11	CARBON	10K	5%	1/4W
R311	1-247-855-11	CARBON	10K	5%	1/4W
R312	1-247-855-11	CARBON	10K	5%	1/4W
R313	1-249-430-11	CARBON	12K	5%	1/4W
R314	1-249-417-11	CARBON	1K	5%	1/4W
R315	1-247-855-11	CARBON	10K	5%	1/4W
R316	1-249-422-11	CARBON	2.7K	5%	1/4W
R317	1-249-413-11	CARBON	470	5%	1/4W
R318	1-247-879-11	CARBON	100K	5%	1/4W
R319	1-247-807-11	CARBON	100	5%	1/4W
R320	1-249-411-11	CARBON	330	5%	1/4W
R323	1-247-811-11	CARBON	150	5%	1/4W
R324	1-247-807-11	CARBON	100	5%	1/4W
R325	1-247-855-11	CARBON	10K	5%	1/4W
R326	1-249-416-11	CARBON	820	5%	1/4W
R327	1-249-433-11	CARBON	22K	5%	1/4W
R328	1-247-879-11	CARBON	100K	5%	1/4W
R401	1-247-855-11	CARBON	10K	5%	1/4W
R402	1-247-871-11	CARBON	47K	5%	1/4W
R406	1-247-839-11	CARBON	2.2K	5%	1/4W
R407	1-247-879-11	CARBON	100K	5%	1/4W
R408	1-247-879-11	CARBON	100K	5%	1/4W
R409	1-247-879-11	CARBON	100K	5%	1/4W
R410	1-247-879-11	CARBON	100K	5%	1/4W
R501	1-249-413-11	CARBON	470	5%	1/4W
R503	1-249-417-11	CARBON	1K	5%	1/4W
R504	1-249-417-11	CARBON	1K	5%	1/4W
R505	1-249-417-11	CARBON	1K	5%	1/4W
R506	1-249-417-11	CARBON	1K	5%	1/4W
R601	1-247-807-11	CARBON	100	5%	1/4W
R602	1-247-807-11	CARBON	100	5%	1/4W
R603	1-247-855-11	CARBON	10K	5%	1/4W
R604	1-247-879-11	CARBON	100K	5%	1/4W
R605	1-247-871-11	CARBON	47K	5%	1/4W
R606	1-247-887-00	CARBON	220K	5%	1/4W
R607	1-247-887-00	CARBON	220K	5%	1/4W
R608	1-247-887-00	CARBON	220K	5%	1/4W
R610	1-247-887-00	CARBON	220K	5%	1/4W
R611	1-247-855-11	CARBON	10K	5%	1/4W
R612	1-247-855-11	CARBON	10K	5%	1/4W
R703	1-247-855-11	CARBON	10K	5%	1/4W
		< RELAY >			
RL301	9-906-859-01	RELAY			
		< SWITCH >			
SW602	9-905-345-01	SWITCH, TACTIL (RESET)			
		< VARIABLE RESISTOR >			
VR301	1-230-529-11	ADJ, METAL GRAZE	470K		
VR302	1-230-519-11	ADJ, METAL GRAZE	470		
		< VIBRATOR >			
X301	1-567-093-00	VIBRATOR, CRYSTAL (38KHz)			
X302	9-905-313-01	VIBRATOR, CRYSTAL (7.2MHz)			
X601	9-905-343-01	VIBRATOR, CERAMIC (4.19MHz)			
**********					
*	1-655-450-11	JACK BOARD			
		**********			
		< CAPACITOR >			
C701	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C702	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
		< CONNECTOR >			
CN701	1-580-441-11	JACK, PIN 2P (AUDIO OUT)			
CNJ701	1-573-549-11	SOCKET, CONNECTOR 11P			
* CNP701	1-566-971-11	PIN, CONNECTOR (PC BOARD) 6P			
		< FERRITE BEAD >			
FB701	1-500-121-21	BEAD, FERRITE (CHIP)			
		< IC LINK >			
IC701	1-532-686-21	LINK, IC			
		< JUMPER RESISTOR >			
JR701	1-216-296-00	METAL CHIP	0	5%	1/8W
JR702	1-216-296-00	METAL CHIP	0	5%	1/8W
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MD

Ref.No.	Part No.	Description			Remark
*	A-3298-465-A	MD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C901	1-124-589-11	ELECT	47uF	20%	16V
C902	1-124-589-11	ELECT	47uF	20%	16V
C903	1-124-589-11	ELECT	47uF	20%	16V
C904	1-124-360-00	ELECT	1000uF	20%	16V
C905	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C906	1-124-589-11	ELECT	47uF	20%	16V
C907	1-124-589-11	ELECT	47uF	20%	16V
C908	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C909	1-124-589-11	ELECT	47uF	20%	16V
C910	1-125-701-11	CAP, DOUBLE LAYER	0.047F		
C911	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C912	1-126-301-11	ELECT	1uF	20%	50V
C913	1-163-189-00	CERAMIC CHIP	220PF	5%	50V
C916	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C917	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C951	1-124-589-11	ELECT	47uF	20%	16V
C952	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C953	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C981	1-163-029-11	CERAMIC CHIP	0.0047uF		50V
C982	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C983	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CNJ901	1-764-391-11	CONNECTOR, FFC/FPC (ZIF) 26P			
CNJ902	1-573-549-11	SOCKET, CONNECTOR 11P			
* CNP981	1-506-998-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D901	8-719-210-33	DIODE	EC10DS2		
D902	8-719-210-33	DIODE	EC10DS2		
D903	8-719-801-78	DIODE	1SS184		
D904	8-719-106-08	DIODE	RD6.2M-B2		
D905	8-719-400-53	DIODE	MA3062-L		
D906	8-719-038-48	DIODE	1SS319(TE85R)		
D907	8-719-801-78	DIODE	1SS184		
D981	8-719-106-08	DIODE	RD6.2M-B2		
D982	8-719-975-40	DIODE	RB411D		
D983	8-719-106-08	DIODE	RD6.2M-B2		
D984	8-719-975-40	DIODE	RB411D		
D986	8-719-975-40	DIODE	RB411D		
		< FERRITE BEAD >			
FB901	1-500-121-21	BEAD, FERRITE (CHIP)			
FB902	1-500-121-21	BEAD, FERRITE (CHIP)			

Ref.No.	Part No.	Description			Remark
		< IC >			
IC901	8-759-231-53	IC	TA7805S		
IC902	8-759-054-12	IC	PQ09RA1		
IC903	8-759-097-36	IC	RH5VA40AA		
IC951	8-759-040-83	IC	BA6287F		
IC981	8-759-284-87	IC	MM1284XFFE		
		< JUMPER RESISTOR >			
JR901	1-216-296-00	METAL CHIP	0	5%	1/8W
JR902	1-216-296-00	METAL CHIP	0	5%	1/8W
JR903	1-216-296-00	METAL CHIP	0	5%	1/8W
JR904	1-216-296-00	METAL CHIP	0	5%	1/8W
JR905	1-216-296-00	METAL CHIP	0	5%	1/8W
JR906	1-216-296-00	METAL CHIP	0	5%	1/8W
JR907	1-216-296-00	METAL CHIP	0	5%	1/8W
JR908	1-216-296-00	METAL CHIP	0	5%	1/8W
JR909	1-216-296-00	METAL CHIP	0	5%	1/8W
JR910	1-216-296-00	METAL CHIP	0	5%	1/8W
JR911	1-216-296-00	METAL CHIP	0	5%	1/8W
JR912	1-216-296-00	METAL CHIP	0	5%	1/8W
JR913	1-216-296-00	METAL CHIP	0	5%	1/8W
JR914	1-216-296-00	METAL CHIP	0	5%	1/8W
JR915	1-216-296-00	METAL CHIP	0	5%	1/8W
JR916	1-216-296-00	METAL CHIP	0	5%	1/8W
JR917	1-216-296-00	METAL CHIP	0	5%	1/8W
JR918	1-216-296-00	METAL CHIP	0	5%	1/8W
JR919	1-216-296-00	METAL CHIP	0	5%	1/8W
JR920	1-216-296-00	METAL CHIP	0	5%	1/8W
JR922	1-216-296-00	METAL CHIP	0	5%	1/8W
JR923	1-216-296-00	METAL CHIP	0	5%	1/8W
JR924	1-216-296-00	METAL CHIP	0	5%	1/8W
JR925	1-216-296-00	METAL CHIP	0	5%	1/8W
JR926	1-216-296-00	METAL CHIP	0	5%	1/8W
JR927	1-216-296-00	METAL CHIP	0	5%	1/8W
JR928	1-216-296-00	METAL CHIP	0	5%	1/8W
JR929	1-216-296-00	METAL CHIP	0	5%	1/8W
JR930	1-216-296-00	METAL CHIP	0	5%	1/8W
JR931	1-216-296-00	METAL CHIP	0	5%	1/8W
JR932	1-216-296-00	METAL CHIP	0	5%	1/8W
JR933	1-216-296-00	METAL CHIP	0	5%	1/8W
JR934	1-216-296-00	METAL CHIP	0	5%	1/8W
JR935	1-216-296-00	METAL CHIP	0	5%	1/8W
JR936	1-216-296-00	METAL CHIP	0	5%	1/8W
JR937	1-216-296-00	METAL CHIP	0	5%	1/8W
JR938	1-216-296-00	METAL CHIP	0	5%	1/8W
JR939	1-216-296-00	METAL CHIP	0	5%	1/8W
JR940	1-216-296-00	METAL CHIP	0	5%	1/8W

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Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q901	8-729-016-83	TRANSISTOR 2SB1446			
Q902	8-729-027-52	TRANSISTOR DTC124EKA-T146			
Q903	8-729-808-01	TRANSISTOR 2SD1622-S			
Q904	8-729-027-31	TRANSISTOR DTA124EKA-T146			
Q905	8-729-230-49	TRANSISTOR 2SC2712-YG			
		< RESISTOR >			
R901	1-216-073-00	METAL CHIP	10K	5%	1/10W
R902	1-216-049-00	METAL CHIP	1K	5%	1/10W
R903	1-216-089-00	METAL CHIP	47K	5%	1/10W
R904	1-216-077-00	METAL CHIP	15K	5%	1/10W
R905	1-216-089-00	METAL CHIP	47K	5%	1/10W
R906	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R907	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R908	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R909	1-216-089-00	METAL CHIP	47K	5%	1/10W
R910	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R953	1-218-279-11	METAL GLAZE	12	5%	1/2W
R954	1-218-279-11	METAL GLAZE	12	5%	1/2W
R955	1-218-279-11	METAL GLAZE	12	5%	1/2W
R981	1-216-089-00	METAL CHIP	47K	5%	1/10W
		< SWITCH >			
SW901	1-571-958-11	SWITCH, PUSH (1 KEY) (PST)			
SW902	1-692-864-21	SWITCH, PUSH (1 KEY) (LOCK)			
SW904	1-571-958-11	SWITCH, PUSH (1 KEY) (LOT)			
SW951	1-571-532-21	SWITCH, TACTIL (EJT)			
**********					
*	1-650-648-11	SENSOR BOARD			
		**********			
		< CONNECTOR >			
CNJ401	1-764-437-21	CONNECTOR, FPC 11P			
CNJ402	1-764-436-21	CONNECTOR, FPC 6P			
* CNP401	1-580-055-21	PIN, CONNECTOR 2P			
* CNP402	1-695-320-21	PIN, CONNECTOR (1.5MM) (SMD) 2P			
		< DIODE >			
D401	8-719-801-78	DIODE 1SS184			
		< JUMPER RESISTOR >			
JR401	1-216-296-00	METAL CHIP	0	5%	1/8W
JR402	1-216-296-00	METAL CHIP	0	5%	1/8W
JR403	1-216-296-00	METAL CHIP	0	5%	1/8W
JR404	1-216-296-00	METAL CHIP	0	5%	1/8W

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q401	8-729-804-41	TRANSISTOR 2SB1122-S			
Q402	8-729-027-52	TRANSISTOR DTC124EKA-T146			
Q403	8-729-024-26	PHOTO TRANSISTOR CPT-181S-C-TU (DPT)			
Q404	8-729-024-26	PHOTO TRANSISTOR CPT-181S-C-TU (DOE)			
		< RESISTOR >			
R401	1-216-198-91	METAL GLAZE	1K	5%	1/8W
R402	1-216-198-91	METAL GLAZE	1K	5%	1/8W
R403	1-216-194-00	METAL CHIP	680	5%	1/8W
		< SWITCH >			
SW401	1-571-754-31	SWITCH, PUSH (1 KEY) (CES)			
**********					
*	A-3298-466-A	SERVO BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C11	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C12	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C13	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C14	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C15	1-135-227-11	TANTAL. CHIP	100uF	20%	6.3V
C18	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C19	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C20	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C21	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C22	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C23	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C24	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C25	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C26	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C27	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C28	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C29	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C30	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C31	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C32	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C33	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C34	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C35	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C36	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C37	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C38	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C39	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C40	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C41	1-164-672-11	CERAMIC CHIP	1500PF	5%	16V
C42	1-162-927-11	CERAMIC CHIP	100PF	5%	50V

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Ref.No.	Part No.	Description			Remark
C43	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C44	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C45	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C51	1-128-313-11	ELECT CHIP	10uF	20%	16V
C52	1-128-313-11	ELECT CHIP	10uF	20%	16V
C53	1-128-313-11	ELECT CHIP	10uF	20%	16V
C54	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C55	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C56	1-128-535-21	ELECT CHIP	15uF	20%	6.3V
C57	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C58	1-128-535-21	ELECT CHIP	15uF	20%	6.3V
C59	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C62	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C63	1-128-313-11	ELECT CHIP	10uF	20%	16V
C64	1-128-313-11	ELECT CHIP	10uF	20%	16V
C65	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C66	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C101	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C102	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C103	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C104	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C105	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C201	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C202	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C203	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C204	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C205	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C301	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CNJ11	1-764-438-21	CONNECTOR, FPC 17P			
CNJ12	1-770-351-21	CONNECTOR, FPC 26P			
CNJ13	1-764-439-21	CONNECTOR, FPC 11P			
CNP11	1-580-057-11	PIN, CONNECTOR 4P			
* CNP12	1-580-055-21	PIN, CONNECTOR 2P			
		< DIODE >			
D11	8-719-801-78	DIODE 1SS184			
		< IC >			
IC11	8-752-061-08	IC CXA1571N			
IC12	8-752-351-94	IC CXD2515Q			
IC13	8-759-071-79	IC BA6297AFP			
IC14	8-752-860-89	IC CXP84120-021Q			
IC16	8-759-196-57	IC SM5874AM-ET			
IC17	8-759-252-90	IC TLV23621PW-ELM1500			

Ref.No.	Part No.	Description			Remark
		< JUMPER RESISTOR >			
JR1	1-216-864-11	METAL CHIP	0	5%	1/16W
		< COIL >			
L11	1-410-999-11	INDUCTOR CHIP	3.3uH		
L12	1-410-381-11	INDUCTOR CHIP	10uH		
		< PHOTO INTERRUPTER >			
PH11	8-749-925-02	PHOTO INTERRUPTER SG-223			
		< TRANSISTOR >			
Q11	8-729-141-48	TRANSISTOR 2SB624-BV345			
Q13	8-729-027-31	TRANSISTOR DTA124EKA-T146			
Q14	8-729-027-31	TRANSISTOR DTA124EKA-T146			
Q15	8-729-027-31	TRANSISTOR DTA124EKA-T146			
Q16	8-729-027-31	TRANSISTOR DTA124EKA-T146			
Q17	8-729-027-52	TRANSISTOR DTC124EKA-T146			
Q21	8-729-807-33	TRANSISTOR 2SB1123-R			
Q22	8-729-027-52	TRANSISTOR DTC124EKA-T146			
Q23	8-729-027-52	TRANSISTOR DTC124EKA-T146			
Q24	8-729-027-23	TRANSISTOR DTA114EKA-T146			
Q25	8-729-015-39	TRANSISTOR DTC323TK			
Q26	8-729-015-39	TRANSISTOR DTC323TK			
		< RESISTOR >			
R11	1-216-841-11	METAL CHIP	47K	5%	1/16W
R12	1-216-841-11	METAL CHIP	47K	5%	1/16W
R13	1-216-847-11	METAL CHIP	150K	5%	1/16W
R14	1-216-024-00	METAL GLAZE	91	5%	1/10W
R15	1-216-847-11	METAL CHIP	150K	5%	1/16W
R16	1-216-857-11	METAL CHIP	1M	5%	1/16W
R17	1-216-857-11	METAL CHIP	1M	5%	1/16W
R18	1-216-073-00	METAL CHIP	10K	5%	1/10W
R19	1-216-097-00	METAL CHIP	100K	5%	1/10W
R20	1-216-073-00	METAL CHIP	10K	5%	1/10W
R21	1-216-836-11	METAL CHIP	18K	5%	1/16W
R22	1-216-837-11	METAL CHIP	22K	5%	1/16W
R23	1-216-813-11	METAL CHIP	220	5%	1/16W
R24	1-216-837-11	METAL CHIP	22K	5%	1/16W
R25	1-216-073-00	METAL CHIP	10K	5%	1/10W
R26	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R27	1-216-073-00	METAL CHIP	10K	5%	1/10W
R28	1-216-073-00	METAL CHIP	10K	5%	1/10W
R29	1-216-033-00	METAL CHIP	220	5%	1/10W
R30	1-216-033-00	METAL CHIP	220	5%	1/10W
R31	1-216-833-11	METAL CHIP	10K	5%	1/16W
R32	1-216-839-11	METAL CHIP	33K	5%	1/16W

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Ref. No.	Part No.	Description			Remark
R33	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R34	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R35	1-216-833-11	METAL CHIP	10K	5%	1/16W
R36	1-216-857-11	METAL CHIP	1M	5%	1/16W
R37	1-216-845-11	METAL CHIP	100K	5%	1/16W
R38	1-216-833-11	METAL CHIP	10K	5%	1/16W
R40	1-216-994-11	METAL GLAZE	13K	5%	1/16W
R41	1-216-839-11	METAL CHIP	33K	5%	1/16W
R42	1-216-837-11	METAL CHIP	22K	5%	1/16W
R43	1-216-843-11	METAL CHIP	68K	5%	1/16W
R44	1-216-843-11	METAL CHIP	68K	5%	1/16W
R45	1-216-843-11	METAL CHIP	68K	5%	1/16W
R46	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R47	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R48	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R49	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R50	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R51	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R52	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R53	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R54	1-216-833-11	METAL CHIP	10K	5%	1/16W
R55	1-216-833-11	METAL CHIP	10K	5%	1/16W
R56	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R57	1-218-344-11	METAL GLAZE	7.5K	5%	1/16W
R58	1-216-841-11	METAL CHIP	47K	5%	1/16W
R59	1-216-089-00	METAL CHIP	47K	5%	1/10W
R60	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R69	1-216-089-00	METAL CHIP	47K	5%	1/10W
R72	1-216-150-00	METAL GLAZE	10	5%	1/8W
R73	1-216-150-00	METAL GLAZE	10	5%	1/8W
R75	1-216-081-00	METAL CHIP	22K	5%	1/10W
R76	1-216-081-00	METAL CHIP	22K	5%	1/10W
R77	1-216-081-00	METAL CHIP	22K	5%	1/10W
R78	1-216-081-00	METAL CHIP	22K	5%	1/10W
R81	1-216-081-00	METAL CHIP	22K	5%	1/10W
R82	1-216-081-00	METAL CHIP	22K	5%	1/10W
R83	1-216-815-11	METAL CHIP	330	5%	1/16W
R84	1-216-815-11	METAL CHIP	330	5%	1/16W
R85	1-216-815-11	METAL CHIP	330	5%	1/16W
R86	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R87	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R88	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R89	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R90	1-216-073-00	METAL CHIP	10K	5%	1/10W
R91	1-216-041-00	METAL CHIP	470	5%	1/10W
R92	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R93	1-216-158-00	METAL GLAZE	22	5%	1/8W
R95	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R96	1-216-841-11	METAL CHIP	47K	5%	1/16W
R97	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R98	1-216-150-00	METAL GLAZE	10	5%	1/8W
R99	1-216-150-00	METAL GLAZE	10	5%	1/8W
R101	1-216-833-11	METAL CHIP	10K	5%	1/16W
R102	1-216-833-11	METAL CHIP	10K	5%	1/16W
R103	1-216-833-11	METAL CHIP	10K	5%	1/16W
R104	1-216-833-11	METAL CHIP	10K	5%	1/16W
R105	1-216-845-11	METAL CHIP	100K	5%	1/16W
R106	1-216-845-11	METAL CHIP	100K	5%	1/16W
R107	1-216-845-11	METAL CHIP	100K	5%	1/16W
R108	1-216-845-11	METAL CHIP	100K	5%	1/16W
R109	1-216-833-11	METAL CHIP	10K	5%	1/16W
R110	1-216-809-11	METAL CHIP	100	5%	1/16W
R111	1-216-845-11	METAL CHIP	100K	5%	1/16W
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W
R202	1-216-833-11	METAL CHIP	10K	5%	1/16W
R203	1-216-833-11	METAL CHIP	10K	5%	1/16W
R204	1-216-833-11	METAL CHIP	10K	5%	1/16W
R205	1-216-845-11	METAL CHIP	100K	5%	1/16W
R206	1-216-845-11	METAL CHIP	100K	5%	1/16W
R207	1-216-845-11	METAL CHIP	100K	5%	1/16W
R208	1-216-845-11	METAL CHIP	100K	5%	1/16W
R209	1-216-833-11	METAL CHIP	10K	5%	1/16W
R210	1-216-809-11	METAL CHIP	100	5%	1/16W
R211	1-216-845-11	METAL CHIP	100K	5%	1/16W
R302	1-216-295-00	CONDUCTOR, CHIP			
R303	1-216-864-11	METAL CHIP	0	5%	1/16W
R304	1-216-089-00	METAL CHIP	47K	5%	1/10W
R306	1-216-851-11	METAL CHIP	330K	5%	1/16W
R307	1-216-851-11	METAL CHIP	330K	5%	1/16W

< VARIABLE RESISTOR >

RV11	1-238-091-11	RES, ADJ, CERMET	22K
RV12	1-238-091-11	RES, ADJ, CERMET	22K

< THERMISTOR >

TH11	1-810-510-21	THERMISTOR NTH5G35A472K01TE

< VIBRATOR >

X11	1-760-479-21	VIBRATOR, CERAMIC (8.0MHz)
X12	1-760-241-11	VIBRATOR, CERAMIC (16.9344MHz)

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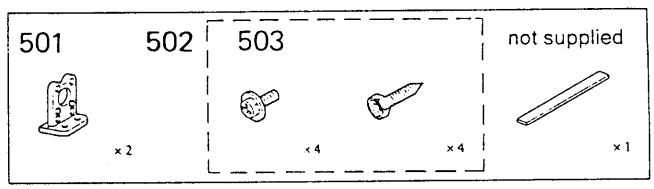
Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
103	1-642-838-11	JACK FLEXIBLE BOARD	
123	1-655-867-11	MD FLEXIBLE BOARD	
201	1-751-193-11	CABLE, FLEXIBLE FLAT (6 CORE)	
203	1-648-660-11	CABLE, FLEXIBLE FLAT (11 CORE)	
204	1-643-083-11	MOTOR FLEXIBLE BOARD	
⚠258	8-848-327-11	DEVICE, OPTICAL KSS-410A	
259	1-653-962-11	FLEXIBLE BOARD	
303	9-906-860-01	POWER SUPPLY CABLE	
C703	1-162-306-11	CERAMIC 0.01uF 30% 16V	
J1	9-905-317-01	ANT CABLE (J) (RF-IN)	
M501	X-3367-983-1	MOTOR ASSY (ELEVATOR UP/DOWN)	
M502	X-3368-665-1	MOTOR (N) ASSY (DISC LOAD/SAVE)	
M601	X-3367-983-1	MOTOR ASSY (EJECT)	
M901	X-3367-782-1	SLED MOTOR ASSY	
M902	A-3252-844-A	MOTOR (SP) ASSY (SPINDLE)	
P1	9-905-316-01	ANT CABLE (J) (RF-OUT)	
PGR401	1-454-580-21	SOLENOID, PLUNGER	
S901	1-570-771-11	SWITCH (LIMIT)	
SW501	1-571-300-31	SWITCH, ROTARY (HOME/TOP)	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-473-112-11	REMOTE COMMANDER (51RF)	
	1-562-593-11	CONNECTOR (CL-2218T) (51RF:AEP, UK)	
	1-590-519-21	CORD (WITH CONNECTOR) (BUS CABLE RC-91)	
	1-690-743-11	CORD, CONNECTION (RCA PIN CORD)	
	3-759-756-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, ITALIAN, DUTCH) (51:AEP, UK)	
	3-759-756-21	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, CHINESE) (51:US, CND, E)	
	3-759-756-41	MANUAL, INSTRUCTION (SPANISH, SWEDISH, PORTUGUESE, DANISH, FINNISH) (51:AEP, UK)	
	3-798-013-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH, CHINESE) (51RF:E)	
	3-798-013-21	MANUAL, INSTRUCTION (ENGLISH, FRENCH) (51RF:US, CND)	
	3-798-019-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH, CHINESE) (51RF:E)	
	3-798-019-21	MANUAL, INSTRUCTION, INSTALL (ENGLISH, FRENCH) (51RF:US, CND)	
	4-875-574-00	SHEET, PROTECTION	
	X-3368-306-2	MAGAZINE ASSY	

Ref. No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#2	7-621-255-40	SCREW +BVTT 2X6 (S)	
#3	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
#4	7-621-773-95	SCREW +PTT 2.6X6 (S)	
#5	7-621-255-20	SCREW +PTT 2X4 (S)	
#6	7-685-782-01	SCREW +PTT 2X5 (S)	
#7	7-621-255-35	SCREW +BVTT 2X5 (S)	
#8	7-627-554-07	SCREW, PRECISION +P 2X2.2	
#9	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
#11	7-624-104-04	STOP RING 2.0, TYPE -E	
#12	7-627-554-37	SCREW, PRECISION +P 2X1.8 TYPE1	
#13	7-624-102-04	STOP RING 1.5, TYPE -E	
#14	7-627-553-27	SCREW, PRECISION +P 2X2.5	
#16	7-621-259-25	SCREW +P 2.6X4	
#17	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT	
#19	7-627-852-17	+P 1.7X4	
		MOUNTING HARDWARE	
		**********	
* 501	3-375-508-11	BRACKET (300)	
502	X-3364-512-1	SCREW ASSY (51RF)	
* 502	X-3369-824-1	SCREW ASSY (51)	
503	7-682-662-09	SCREW +PSW 4X10	



The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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CDX-51/51RF

SONY

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

SUPPLEMENT-1

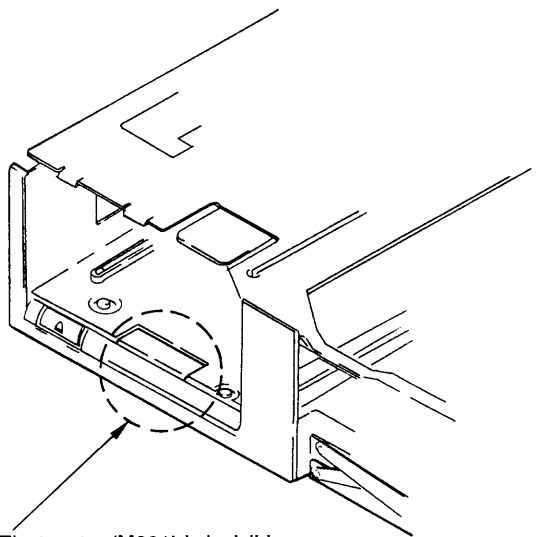
File this supplement with the service manual.

Subject: Mechanism Deck Modification

(ENG-95012)

The mechanism deck was changed from MG-108K-132 to MG-108Z-132.
This supplement contains only a new type mechanism deck.
No circuit is changed, and therefore for electrical parts, please refer to the CDX-51/51RF service manual (9-959-909-11) previously issued.

- **New Type Discrimination**



Former type: Eject motor (M601) is invisible.
New type : Eject motor (M601) is visible.

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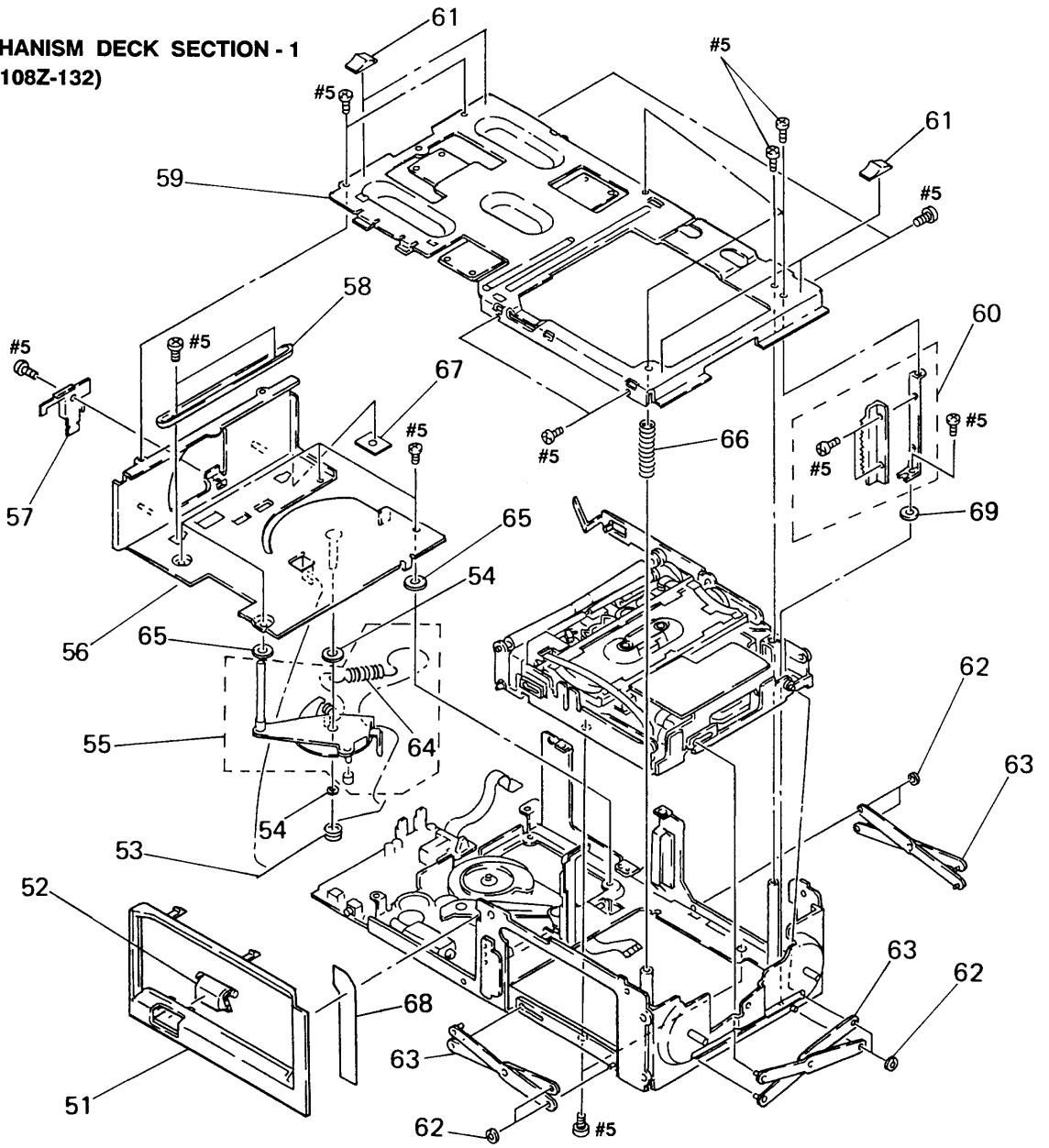
MECHANISM DECK MODIFICATION

• EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of the electrical parts list.

(2) MECHANISM DECK SECTION - 1 (MG-108Z-132)



Ref. No.	Part No.	Description	Remark
* 51	3-364-436-01	ESCUTCHEON	
52	3-364-437-01	BUTTON (EJ) (⏏)	
53	3-364-478-01	SPRING (EJ)	
54	3-377-720-01	WASHER, POLYETHYLENE	
* 55	X-3371-171-1	LEVER (EJZ) ASSY	
* 56	X-3371-145-1	CHASSIS (MZS) ASSY	
* 57	3-918-830-11	BRACKET (TR)	
* 58	3-364-434-01	GUIDE (MZ)	
* 59	X-3371-094-1	COVER (MDS) ASSY	
	[illegible]2-488-1	RACK ASSY	

Ref. No.	Part No.	Description	Remark
61	3-748-750-01	CUSHION (DAMPER)	
62	3-377-719-01	WASHER, POLYETHYLENE	
* 63	X-3362-348-1	LEVER (X) ASSY	
64	3-568-814-00	SPRING, TENSION	
* 65	3-360-121-31	SPACER (W)	
66	3-370-364-01	SPRING, COMPRESSION	
* 67	3-386-476-01	TAPE (FLEXIBLE)	
68	3-372-331-11	SHEET (ESCUTCHEON)	
* 69	3-360-121-11	SPACER (W)	

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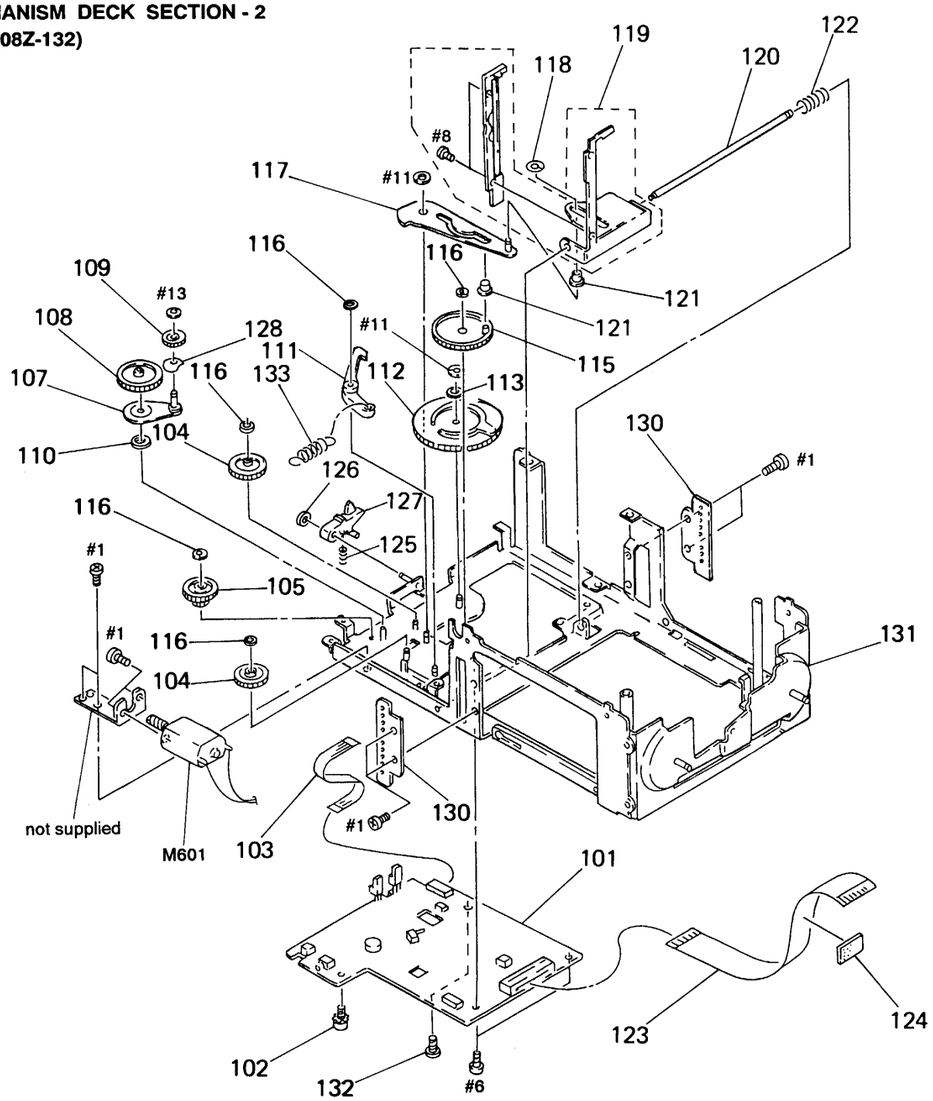
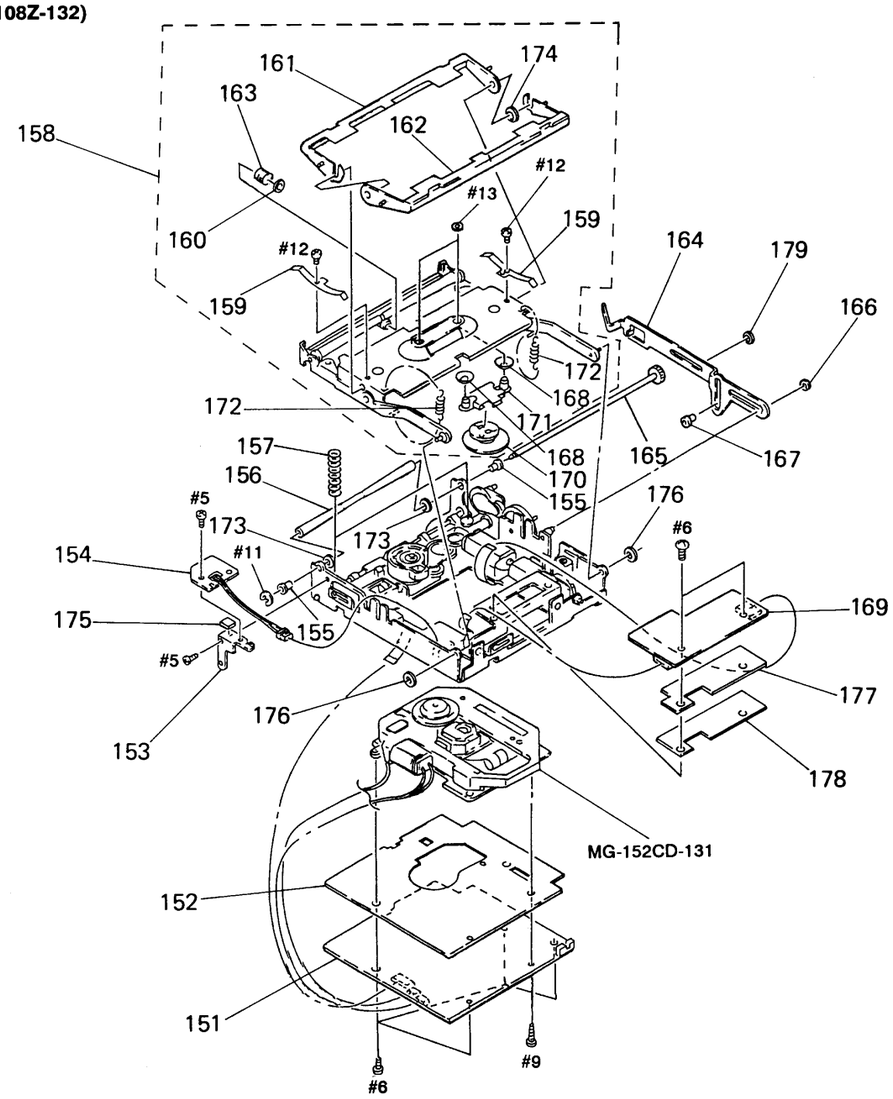
(3) MECHANISM DECK SECTION - 2 (MG-108Z-132)



Ref. No.	Part No.	Description	Remark
* 101	A-3298-465-A	MD BOARD, COMPLETE	
102	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT	
103	1-642-838-11	JACK FLEXIBLE BOARD	
104	3-364-420-01	GEAR (M)	
105	3-364-413-01	WHEEL (B), WORM	
* 107	X-3362-328-1	LEVER (KMZ) ASSY	
108	3-364-417-01	GEAR (L)	
109	3-364-415-01	GEAR (KS)	
110	3-316-308-11	WASHER	
111	3-364-433-01	STOPPER (DR)	
112	3-912-309-01	GEAR (EJ4), CAM	
113	3-373-013-01	SPRING (EJ CAM)	
* 115	3-364-432-01	GEAR (DR)	
116	3-377-719-01	WASHER, POLYETHYLENE	
* 117	X-3362-329-1	LEVER (DR) ASSY	
118	3-379-490-11	WASHER, POLYETHYLENE	
* 119	X-3362-324-1	SLIDER (DR) ASSY	
* 120	3-364-502-01	SHAFT (SDR)	
121	3-364-506-01	ROLLER (SL)	
122	3-568-315-01	SPRING, COMPRESSION	
123	1-655-867-11	MD FLEXIBLE BOARD	
124	9-911-844-XX	CUTION, BATTERY	
125	3-370-385-01	SPRING, COMPRESSION	
126	3-377-720-11	WASHER, POLYETHYLENE	
127	3-908-794-01	LEVER (T2) (MZ LOCK)	
128	3-364-387-11	SPRING (F)	
* 130	3-364-427-01	CATCHER	
* 131	X-3368-110-1	CHASSIS (MD) ASSY	
132	3-913-406-01	SCREW (GROUND)	
133	3-531-866-01	SPRING, TENSION	
M601	X-3371-317-1	MOTOR (MZ) ASSY (EJECT)	

(4) MECHANISM DECK SECTION - 3 (MG-108Z-132)



Ref. No.	Part No.	Description	Remark
* 151	A-3298-466-A	SERVO BOARD, COMPLETE	
* 152	3-924-929-01	SHEET (EV CD), INSULATING	
* 153	3-368-565-01	BRACKET (DPT)	
* 154	1-650-649-11	DPT BOARD	
155	3-364-421-01	BEARING (ROLLER)	
156	3-323-231-11	ROLLER (LOWER)	
157	3-364-508-01	SPRING, COMPRESSION	
158	X-3371-117-1	ARM (RZ) ASSY	
159	3-375-290-06	SPRING (DH)	
160	3-341-752-11	WASHER, POLYETHYLENE	
161	X-3368-226-2	ARM (DH) ASSY	
162	X-3366-788-2	ARM (DH2) ASSY	
163	3-364-504-11	ROLLER (RA)	
* 164	3-364-380-01	LEVER, SLIDE	
165	X-3362-345-1	GEAR ASSY, ROLLER	
166	3-377-720-01	WASHER, POLYETHYLENE	
167	3-364-506-01	ROLLER (SL)	
168	3-908-497-01	SPRING (GALVANIZED IRON)	
* 169	1-650-650-11	DRIVE BOARD	
170	3-915-913-01	PLATE (CD), CHUCK	
171	X-3367-910-1	BRACKET (CP) (51) ASSY	
172	3-371-504-01	SPRING, TENSION	
173	3-701-438-11	WASHER, 2.5	
174	3-380-963-11	SPACER	
* 175	3-916-162-01	SPACER	
176	3-377-719-01	WASHER, POLYETHYLENE	
* 177	3-929-694-01	SPACER (DTK)	
* 178	3-929-695-01	SHEET (DTK)	
179	3-377-720-11	WASHER, POLYETHLENE	

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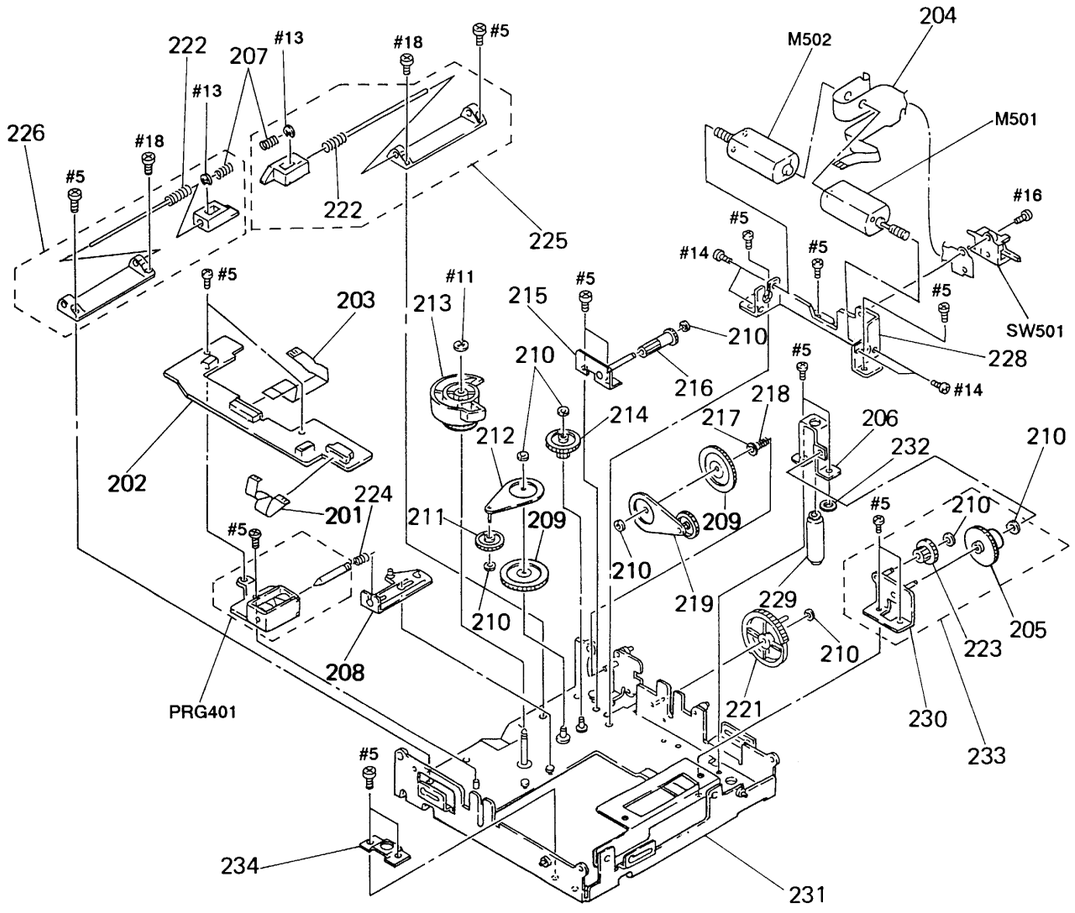
(5) MECHANISM DECK SECTION - 4 (MG-108Z-132)



Ref. No.	Part No.	Description	Remark
201	1-751-193-11	CABLE, FLEXIBLE FLAT (6 CORE)	
* 202	1-650-648-11	SENSOR BOARD	
203	1-648-660-11	CABLE, FLEXIBLE FLAT (11 CORE)	
204	1-654-938-11	MOTOR FLEXIBLE BOARD	
205	3-364-424-02	GEAR (EV)	
* 206	3-364-401-01	BRACKET (BEARING B)	
207	3-485-239-00	SPRING, COMPRESSION	
* 208	X-3364-531-1	SLIDER (KR) ASSY	
209	3-364-417-01	GEAR (L)	
210	3-377-719-01	WASHER, POLYETHYLENE	
211	3-364-422-01	GEAR (K)	
212	X-3362-342-1	LEVER (KRA) ASSY	
213	3-364-419-01	GEAR (R), CAM	
214	3-364-505-01	WHEEL (C), WORM	
215	X-3362-343-1	BRACKET (WWR) ASSY	
216	3-364-416-01	WHEEL (R), WORM	
217	3-930-298-01	WASHER, 4 DIA. TEFLON	
218	3-388-479-01	SPRING, COMPRESSION	

Ref. No.	Part No.	Description	Remark
219	X-3363-690-1	GEAR (KW) ASSY	
221	3-364-418-04	GEAR (SL)	
222	3-308-717-00	SPRING, COMPRESSION	
223	3-910-522-01	WHEEL (2), WORM	
224	3-353-804-01	SPRING, COMPRESSION	
225	X-3362-487-1	LOCK (F) ASSY	
226	X-3362-486-1	LOCK (B) ASSY	
228	3-912-770-01	BRACKET (EVM2)	
* 229	3-364-461-01	BEARING (EV)	
230	X-3362-340-7	BRACKET (EV GEAR) ASSY	
* 231	X-3371-095-1	CHASSIS (EVS) ASSY	
* 232	3-360-121-31	SPACER (W)	
233	X-3367-863-1	GEAR ASSY (2), EV	
* 234	3-364-400-01	BRACKET (BEARING F)	
M501	X-3371-319-1	MOTOR (EV) ASSY (ELEVATOR UP/DOWN)	
M502	X-3371-318-1	MOTOR (LD) ASSY (DISC LOAD/SAVE)	
PRG401	1-454-580-21	SOLENOID, PLUNGER	
SW501	1-571-300-31	SWITCH, ROTARY (HOME/TOP)	

• HARDWARE LIST

Ref. No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#1	7-621-255-10	SCREW +P 2X3	
#5	7-685-781-09	SCREW +PTT 2X4 (S)	
#6	7-685-782-01	SCREW +PTT 2X5 (S)	
#8	7-627-554-07	SCREW, PRECISION +P 2X2.2	
#9	7-685-104-19	SCREW +P 2X6 TYPE 2 NON-SLIT	
#11	7-624-104-04	STOP RING 2.0, TYPE -E	
#12	7-627-554-37	SCREW, PRECITION +P 2X1.8 TYPE 1	
#13	7-624-102-04	STOP RING 1.5, TYPE -E	
#14	7-627-553-27	SCREW, PRECISION +P 2X2.5	
#16	7-621-259-25	SCREW +P 2.6X4	
#18	7-627-554-58	SCREW +P 2X2.8	

9-959-909-82

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CDX-51/51RF

SONY®

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

SUPPLEMENT-2

File this supplement with the service manual.

Subject:
1. Correction
2. Mechanism Deck Modification
3. Board Modification

(SPM-95046, ENG-96018)

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2-2. Disassembly 3
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1. CORRECTION

Page	Ref. No.	Incorrect		Correct	
		Part No.	Description	Part No.	Description
38	* 3	3-919-139-01	CASE (LOWER)	3-919-139-01 3-918-170-01	CASE (LOWER) (51/51RF:AEP, UK, E) CASE (LOWER) (51RF:US, Canadian)
	7	3-375-504-21	LEVER (SPRING)	3-375-504-21 3-375-504-42	LEVER (SPRING) (51/51RF:AEP, UK, E) LEVER (SPRING) (51RF:US, Canadian)
	12	X-3364-882-1	ARM (SPRING) ASSY	X-3370-157-1 X-3369-340-1	ARM (SPRING) ASSY (51/51RF:AEP, UK, E) ARM (SPRING) ASSY 2 (51RF:US, Canadian)
	13	3-375-501-01	DAMPER (CNG)	3-375-501-01 3-924-660-01	DAMPER (CNG) (51/51RF:AEP, UK, E) DAMPER (H) (51RF:US, Canadian)
39	*51	3-388-593-01	ESCUTCHEON (2)	3-388-593-01 3-931-018-01	ESCUTCHEON (2) (51/51RF:AEP, UK, E) ESCUTCHEON (G) (51RF:US, Canadian)
	52	3-388-592-01	BUTTON (EJ2) (⏏)	3-388-592-01 3-364-437-01	BUTTON (EJ2) (⏏) (51/51RF:AEP, UK, E) BUTTON (EJ) (⏏) (51RF:US, Canadian)

NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

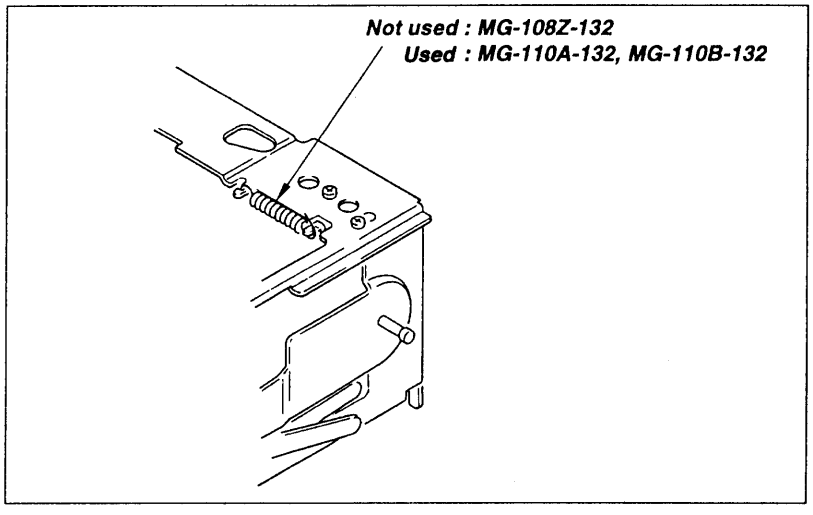
2. MECHANISM DECK MODIFICATION

The mechanism deck was changed from MG-108Z-132 to MG-110A-132, MG-110B-132.
This supplement contains only a new type mechanism deck.

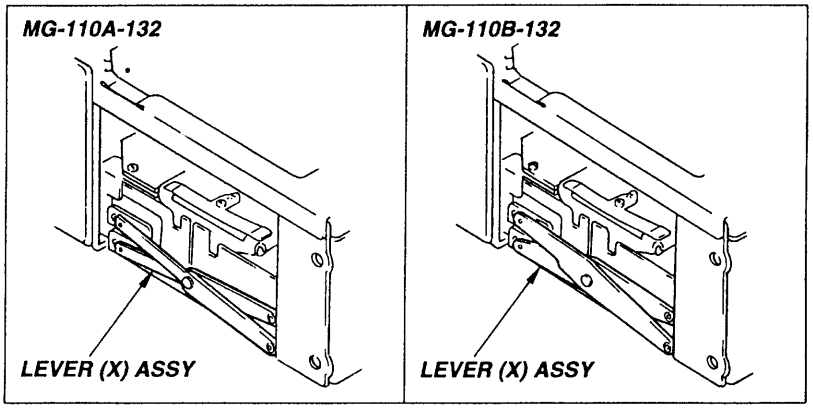
2-1. NEW/FORMER DISCRIMINATION

- **Mechanism Deck Type Discrimination**

MG-108Z-132 to MG-110A-132, MG-110B-132



MG-110A-132 to MG-110B-132



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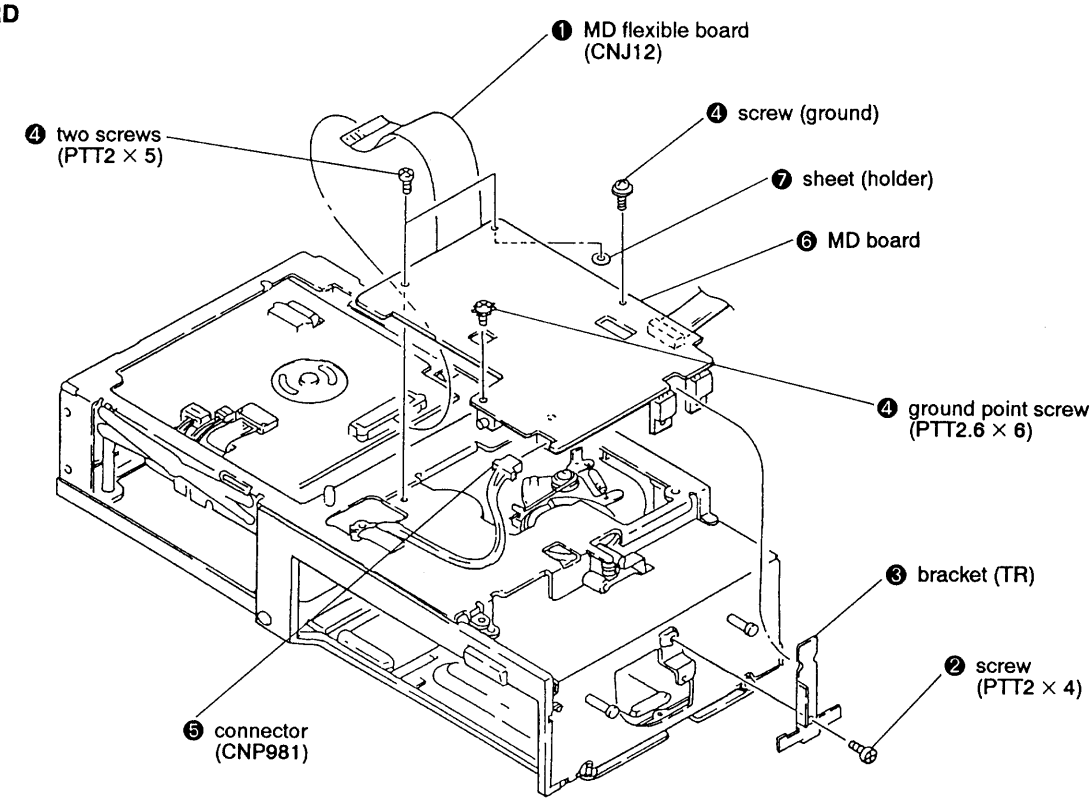
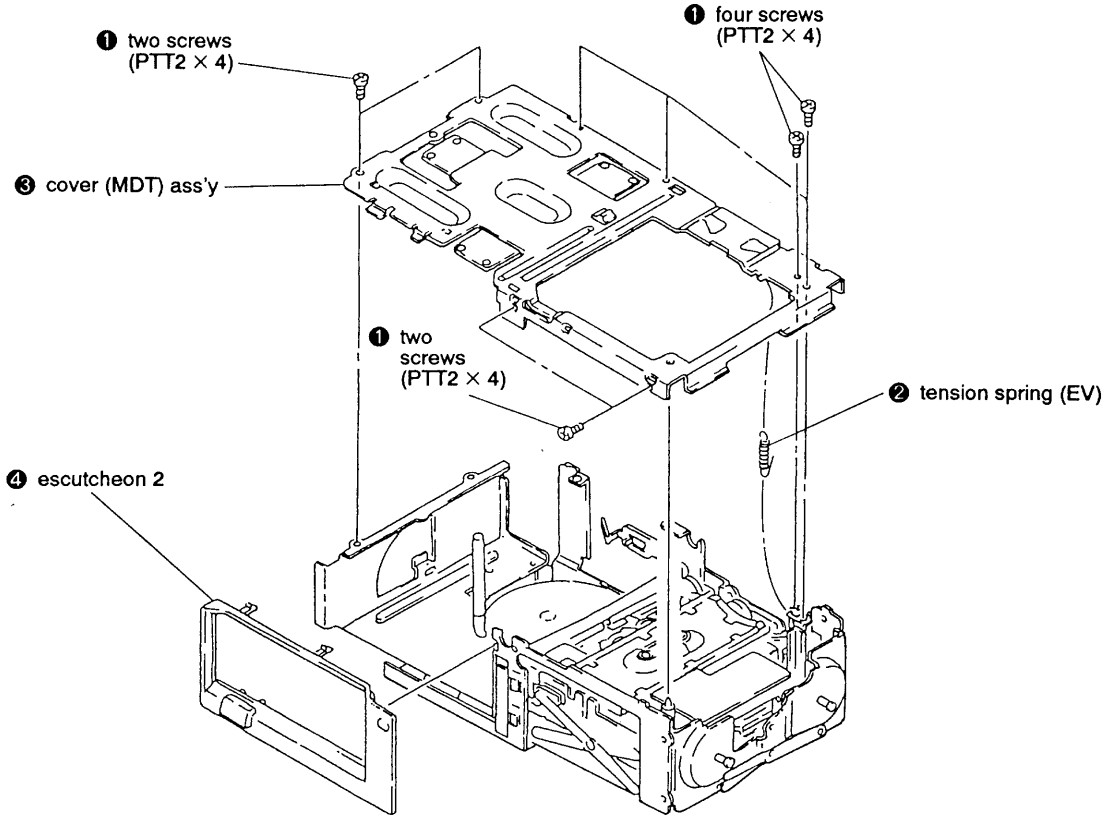
2-2. DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

MD BOARD


❶ MD flexible board (CNJ12)
❹ two screws (PTT2 × 5)
❹ screw (ground)
❼ sheet (holder)
❻ MD board
❹ ground point screw (PTT2.6 × 6)
❸ bracket (TR)
❷ screw (PTT2 × 4)
❺ connector (CNP981)

COVER (MDT) ASS'Y AND ESCUTCHEON (2)



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2-3. EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviation
  CND : Canadian
  110A : MG-110A-132
  110B : MG-110B-132
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

CASE SECTION

Page	Former Type			New Type	
	Ref No.	Part No.	Description	Part No.	Description
44	* 5	1-655-450-11	JACK BOARD	1-655-450-21	JACK BOARD
	* 6	1-655-451-11	BUS BOARD	1-655-451-21	BUS BOARD
	9	3-348-750-01	CUSHION (DAMPER)		

DISPLAY UNIT SECTION (CDX-51RF ONLY)

Page	Former Type			New Type	
	Ref No.	Part No.	Description	Part No.	Description
51	360	9-909-880-01	CASE (FRONT)	3-375-165-71	CASE (FRONT)

Ref. No.	Part No.	Description	Remark
		********** HARDWER LIST **********	
#3	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
#5	7-685-781-09	SCREW +PTT 2X4 (S)	
#6	7-685-782-01	SCREW +PTT 2X5 (S)	
#8	7-627-554-07	SCREW, PRECISION +P 2X2.2	
#11	7-624-104-04	STOPRING 2.0, TEPE-E	
#12	7-627-554-37	SCREW, PRECISION +P 2X1.8 TYPE 1	
#13	7-624-102-04	STOP RING 1.5, TYPE-E	
#14	7-627-553-27	SCREW, PRECISION +P 2X2.5	
#16	7-621-259-25	SCREW +P 2.6X4	
#20	7-685-102-19	SCREW +P 2X4 TYPE 2 NON-SLIT	
#21	7-685-780-01	SCREW +PTT 2X3, (S)	

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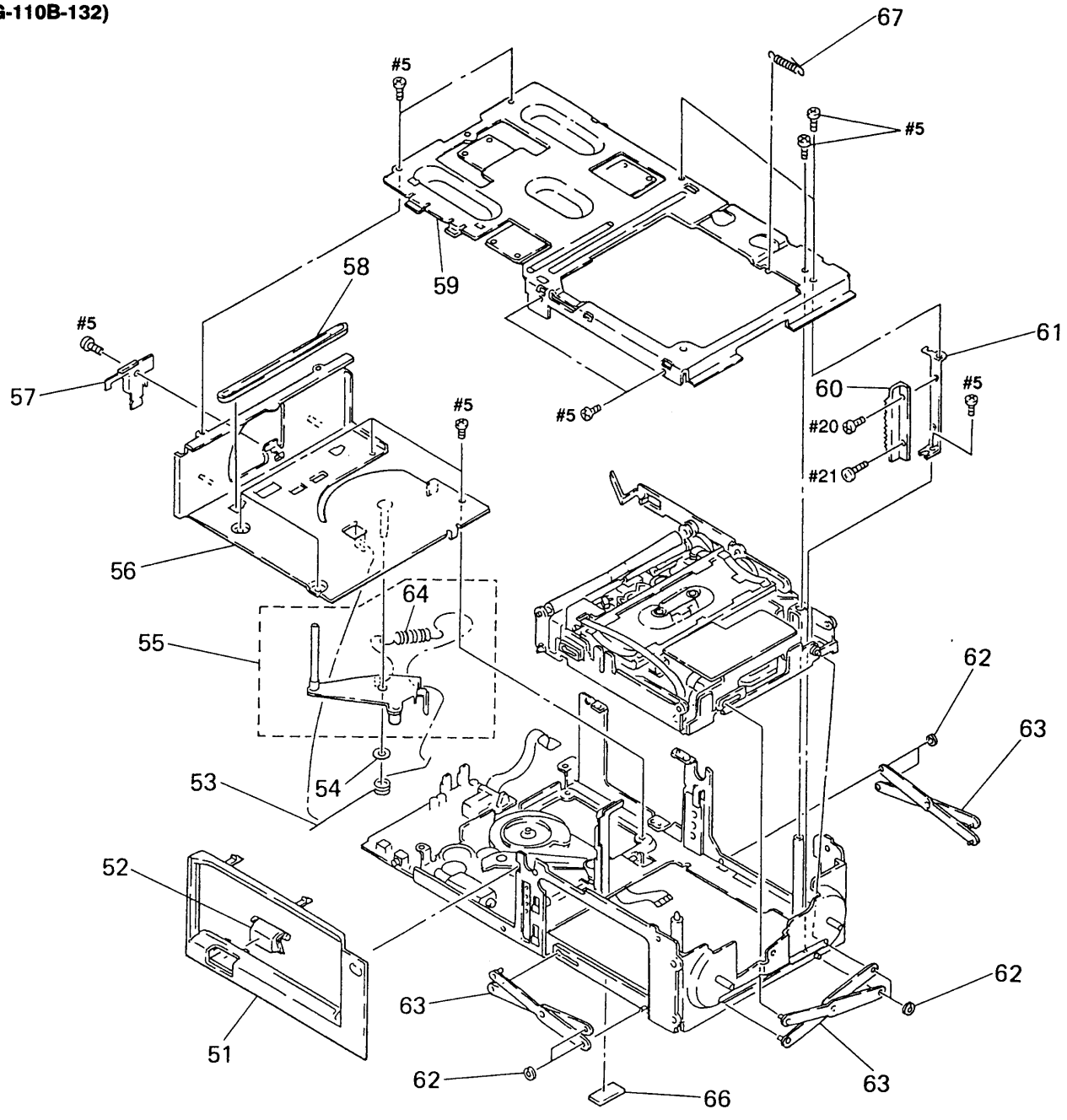
MECHANISM DECK SECTION-1
(MG-110A-132)
(MG-110B-132)



Ref. No.	Part No.	Description	Remark
* 51	3-388-593-01	ESCUTCHEON (2)	
52	3-388-592-01	BUTTON (EJ2) (⏏)	
53	3-364-478-01	SPRING (EJ)	
54	3-911-104-01	WASHER	
55	X-3371-264-1	LEVER (NET) ASSY	
* 56	X-3371-263-1	CHASSIS (MZT) ASSY	
* 57	3-918-830-11	BRAKET (TR)	
* 58	3-911-106-01	GUIDE (MZ2)	
* 59	X-3371-266-1	COVER (MDT) ASSY	

Ref. No.	Part No.	Description	Remark
60	3-930-600-01	RACK (EV)	
61	3-931-453-01	RACK (110)	
62	3-377-719-01	WASHER, POLYETHYLENE	
* 63	X-3362-348-1	LEVER (X) ASSY (110A)	
63	X-3371-384-1	LEVER (X) ASSY (110B)	
64	3-927-978-01	SPRING, TENSION	
* 66	3-928-691-01	CUSHION (EV)	
67	3-931-995-01	SPRING (EV), TENSION	

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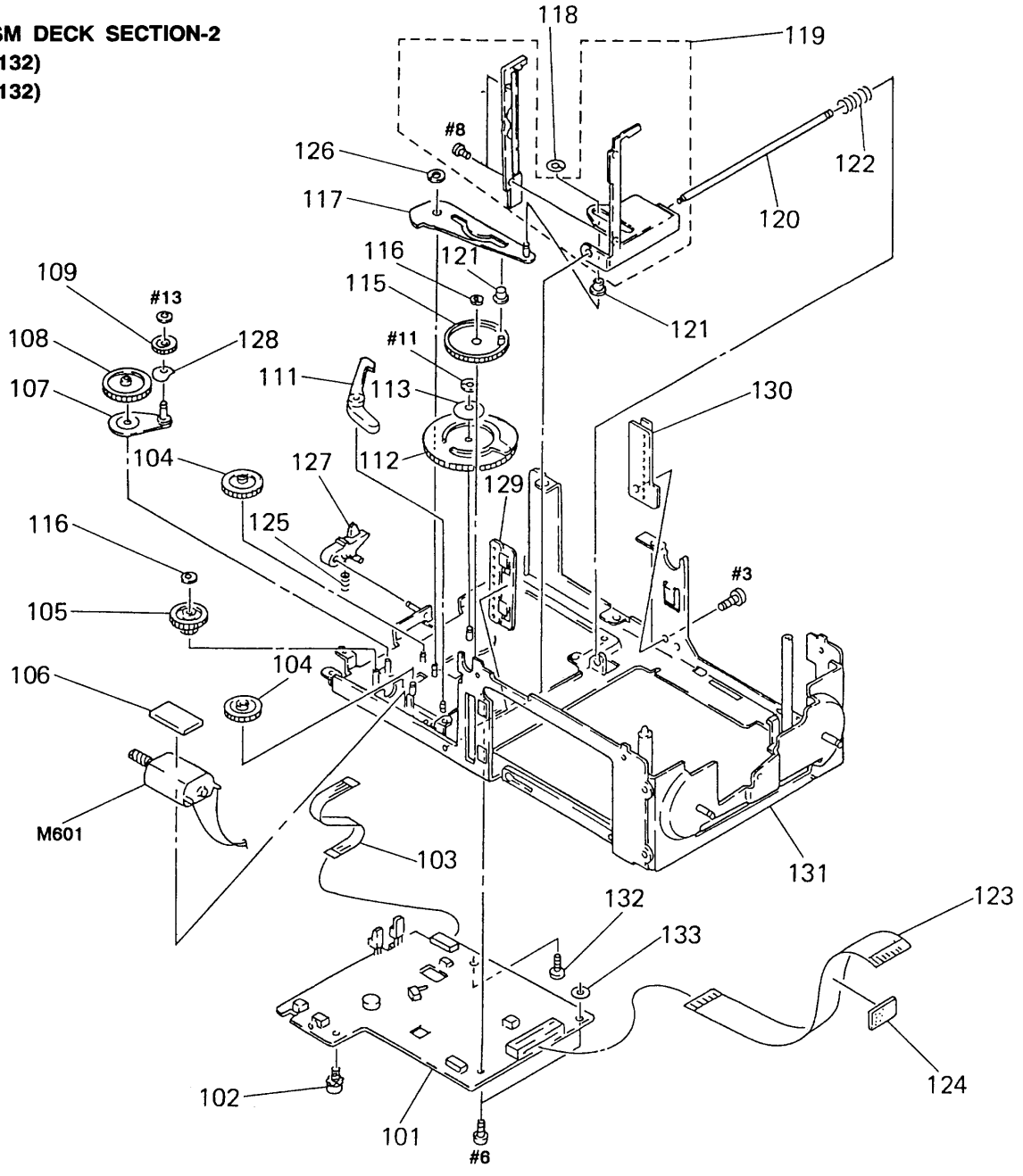
MECHANISM DECK SECTION-2
(MG-110A-132)
(MG-110B-132)



Ref. No.	Part No.	Description	Remark
* 101	A-3298-465-A	MD BOARD, COMPLETE	
102	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT	
103	1-642-838-11	JACK FLEXIBLE BOARD	
104	3-911-076-02	GEAR (MS)	
105	3-911-090-01	WHEEL (B2), WORM	
106	3-911-105-11	CUSHION (M)	
107	X-3371-253-1	LEVER (KMZT) ASSY	
108	3-911-074-02	GEAR (L2)	
109	3-912-977-01	GEAR (KS2)	
111	3-911-083-01	ARM (DR)	
112	3-912-309-01	GEAR (EJ4), CAM	
113	3-373-013-01	SPRING (EJ CAM)	
115	3-911-096-01	GEAR (DR2)	
116	3-377-719-01	WASHER, POLYETHYLENE	
117	X-3371-256-1	LEVER (DRT) ASSY	
118	3-379-490-11	WASHER, POLYETHYLENE	

Ref. No.	Part No.	Description	Remark
119	X-3371-255-1	SLIDER (DRT) ASSY	
* 120	3-911-093-01	SHAFT (SDR2)	
121	3-364-506-01	ROLLER (SL)	
122	3-568-315-01	SPRING, COMPRESSION	
123	1-655-867-11	MD FLEXIBLE BOARD	
124	9-911-844-XX	CUSHION, BATTERY	
125	3-927-977-01	SPRING, COMPRESSION	
126	3-377-720-01	WASHER, POLYETHYLENE	
127	3-908-794-01	LEVER (T2) (MZ LOCK)	
128	3-364-387-11	SPRING (F)	
129	3-375-706-03	CATCHER (F)	
130	3-375-707-02	CATCHER (B)	
* 131	X-3371-254-1	CHASSIS (MDT) ASSY	
132	3-913-406-01	SCREW (GROUND)	
133	3-350-981-21	SHEET (HOLDER)	
M601	X-3370-179-1	MOTOR (P), ASSY (EJECT)	

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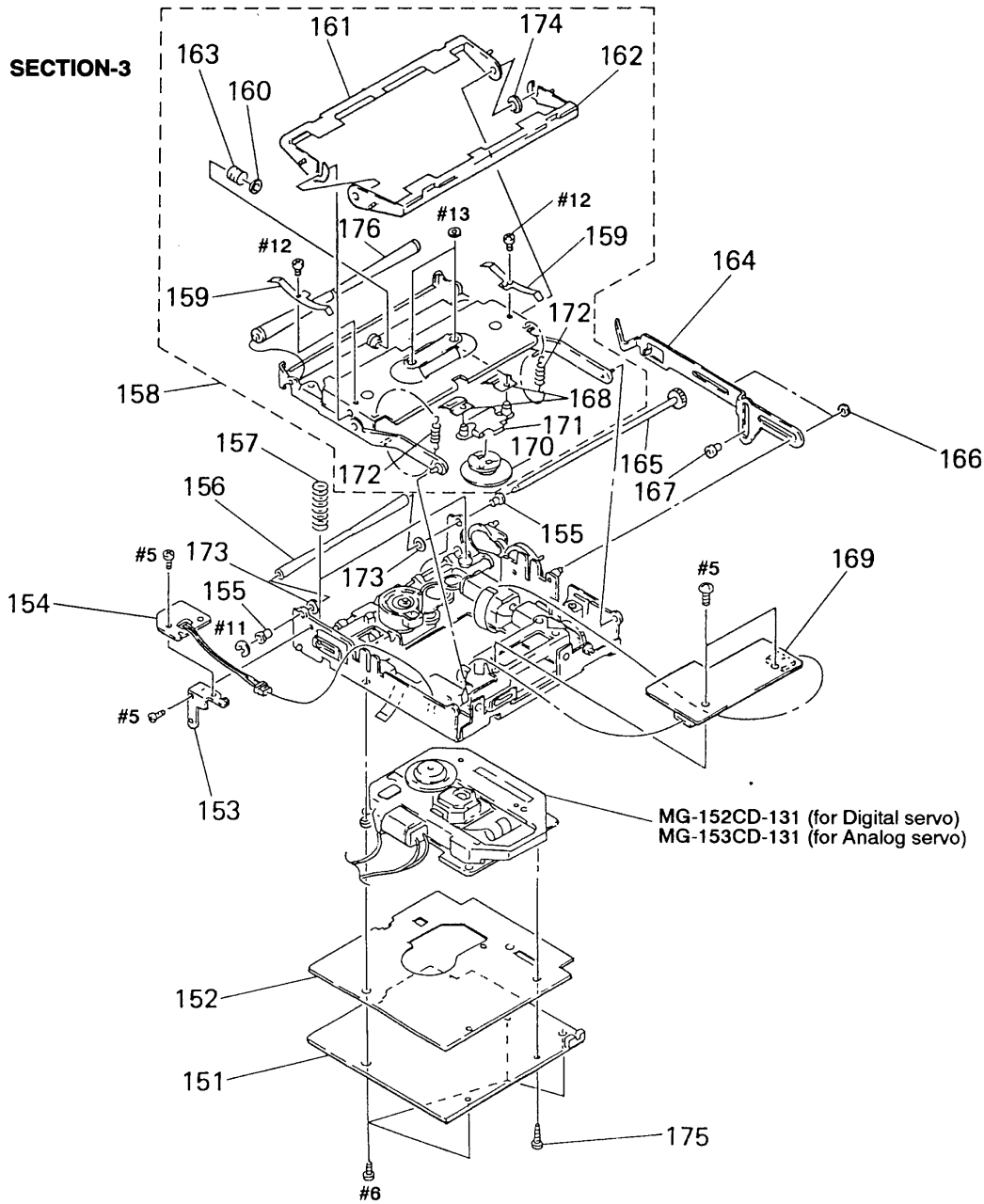
MECHANISM DECK SECTION-3
(MG-110A-132)
(MG-110B-132)



Ref. No.	Part No.	Description	Remark
* 151	A-3298-467-A	SERVO BOARD, COMPLETE (for Digital servo)	
* 151	A-3309-046-A	SERVO BOARD, COMPLETE (for Analog servo)	
* 152	3-924-929-12	SHEET (EV.CD), INSULATING	
* 153	3-930-565-01	BRACKET (DPTT)	
* 154	1-650-649-22	DPT BOARD (110A)	
* 154	1-659-820-11	DPT BOARD (110B)	
155	3-364-421-01	BEARING (ROLLER)	
156	3-323-231-11	ROLLER (LOWER) (110A)	
156	3-909-408-01	ROLLER (T) (110B)	
157	3-364-508-01	SPRING, COMPRESSION	
158	X-3367-989-8	ARM (NR), ASSY (110A)	
158	X-3372-148-2	ARM (KR) COMPLETE ASSY (110B)	
159	3-375-290-06	SPRING (DH) (110A)	
159	3-929-743-01	SPRING (DH2) (110B)	
160	3-341-752-11	WASHER, POLYETHYLENE	
161	X-3368-226-2	ARM (DH) ASSY (110A)	
161	X-3371-482-1	ARM (DHK) ASSY (110B)	
162	X-3366-788-2	ARM (DH2) ASSY (110A)	
162	X-3371-483-1	ARM (DHK2) ASSY (110B)	
163	3-364-504-11	ROLLER (RA) (110A)	
163	3-932-177-01	ROLLER (RK) (110B)	
* 164	3-364-380-11	LEVER, SLIDE (110A)	
* 164	3-932-163-01	LEVER, SLIDE (110B)	
165	X-3371-610-1	GEAR (K) ASSY, ROLLER	
166	3-377-720-01	WASHER, POLYETHYLENE	
167	3-364-506-01	ROLLER (SL)	
168	3-908-497-01	SPRING (GALVANIZED IRON) (110A)	
168	3-932-166-01	SPRING (GALVANIZED IRON 2) (110B)	
* 169	1-650-650-21	DRIVER BOARD (110A)	
* 169	1-659-819-11	DRIVER BOARD (110B)	
170	3-915-913-01	PLATE (CD), CHUCK	
171	X-3367-910-1	BRACKET (CP) (51) ASSY (110A)	
171	X-3371-484-1	BRACKET (CPK) ASSY (110B)	
172	3-371-504-01	SPRING, TENSION (110A)	
173	3-701-438-11	WASHER, 2.5 (110A)	
173	3-701-438-21	WASHER, 2.5 (110B)	
174	3-380-963-11	SPACER	
175	3-912-537-01	SCREW (45-2)	
176	X-3329-518-1	ROLLER (UPPER) ASSY	

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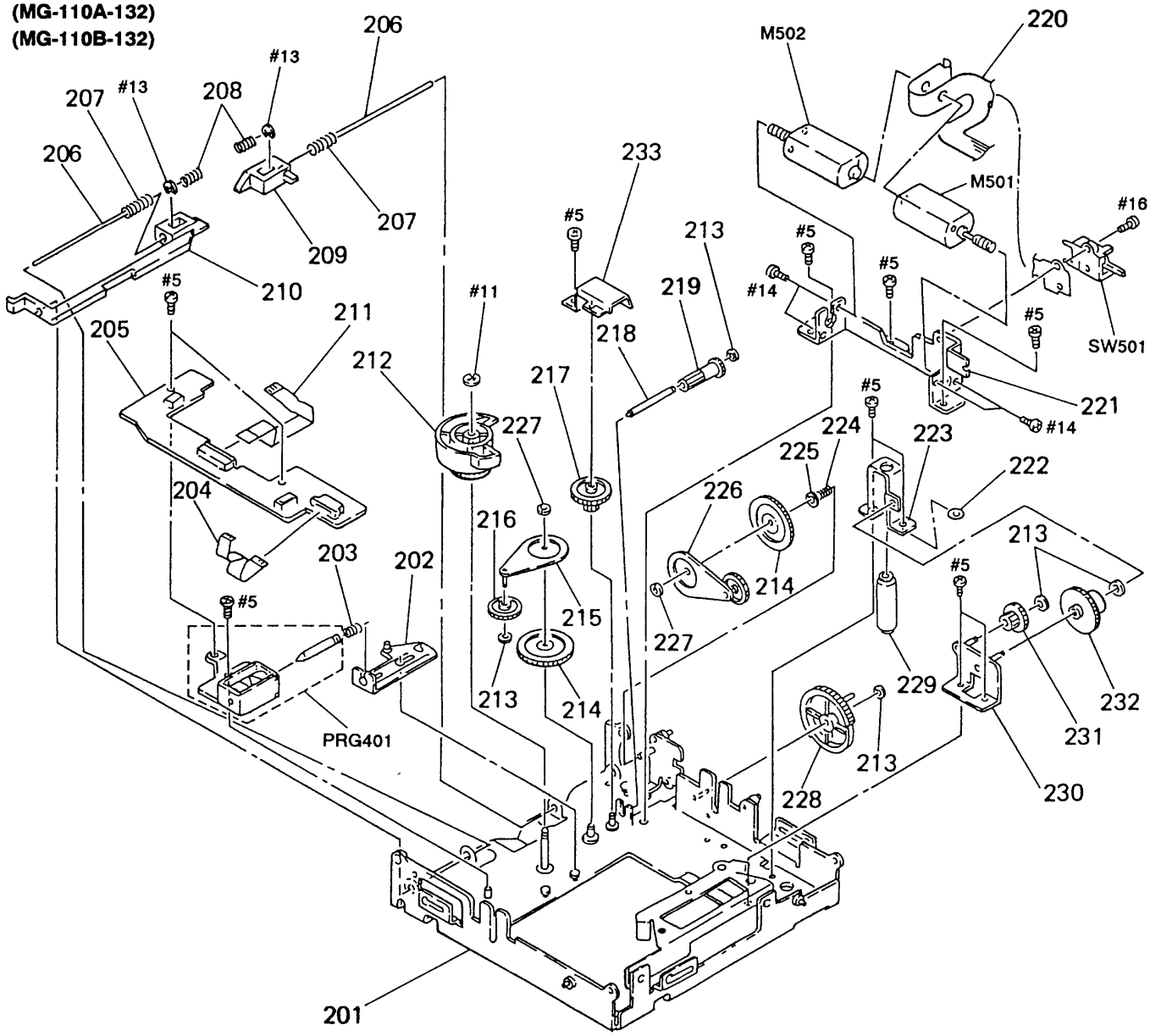
MECHANISM DECK SECTION-4
(MG-110A-132)
(MG-110B-132)



Ref. No.	Part No.	Description	Remark
* 201	X-3371-260-1	CHASSIS (EVT) ASSY	
202	X-3371-261-1	SLIDER (KRT) ASSY	
203	3-353-804-01	SPRING, COMPRESSION	
204	1-751-193-11	CABLE, FLEXIBLE FLAT (6 CORE)	
* 205	1-650-648-22	SENSOR BOARD (110A)	
* 205	1-659-818-11	SENSOR BOARD (110B)	
206	3-911-097-01	SHAFT (LOCK 2)	
207	3-308-717-00	SPRING, COMPRESSION	
208	3-485-239-00	SPRING, COMPRESSION	
209	3-911-102-01	LOCK (CLAW B)	
210	3-911-087-01	LOCK (CLAW)	
211	1-648-660-11	CABLE, FLEXIBLE FLAT (11 CORE)	
212	3-364-419-01	GEAR (R), CAM	
213	3-377-719-01	WASHER, POLYETHYLENE	
214	3-364-417-01	GEAR (L)	
215	X-3371-258-1	LEVER (KRAT) ASSY	
216	3-364-422-01	GEAR (K)	
217	3-364-505-01	WHEEL (C), WORM	
218	3-911-088-01	SHAFT (WWR2)	
219	3-911-089-01	WHEEL (R2), WORM	
220	1-659-817-11	MOTOR FLEXIBLE BOARD	
221	3-930-568-01	BRACKET (EVMT)	
222	3-701-441-11	WASHER	
223	3-932-549-01	BRACKET (BEARING BK)	
224	3-388-479-01	SPRING, COMPRESSION	
225	3-930-298-01	WASHER (TEFLON)	
226	X-3371-259-1	GEAR (KWT) ASSY	
227	3-377-719-11	WASHER, POLYETHYLENE	
228	3-364-418-04	GEAR (SL)	
229	3-932-550-01	BEARING (BK)	
230	X-3371-268-1	BRACKET (EVT GEAR) ASSY	
231	3-910-522-01	WHEEL (2), WORM	
232	3-364-424-02	GEAR (EV)	
233	3-930-566-01	COVER (GEAR T)	
M501	X-3367-983-1	MOTOR ASSY (ELEVATOR UP/DOWN)	
M502	X-3368-665-1	MOTOR (N) ASSY (DISC LOADING/SAVE)	
PGR401	1-454-580-21	SOLENOID, PLUNGER	
SW501	1-571-300-31	SWITCH, ROTARY (HOME/TOP)	

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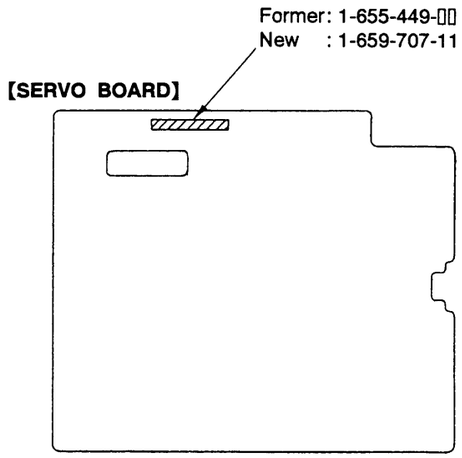
3. BOARD MODIFICATION

The servo system was changed from digital system to analog system.

3-1. NEW/FORMER DISCRIMINATION



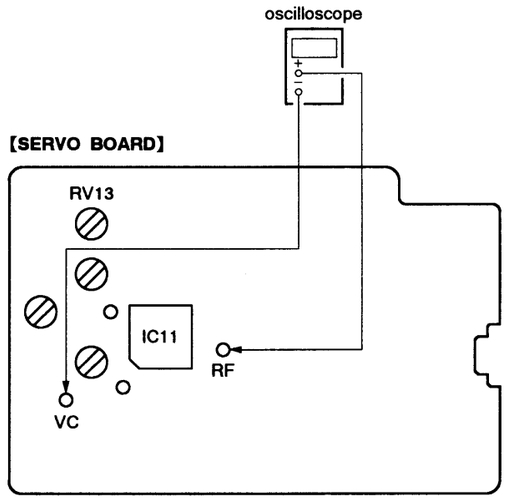
3-2. ELECTRICAL ADJUSTMENTS

COMPACT DISC CHANGER

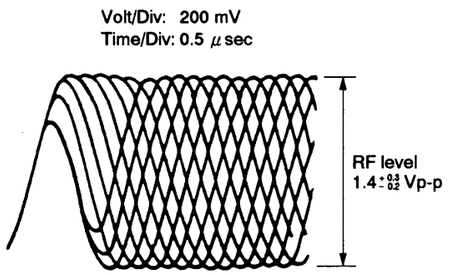
1. Perform adjustments as given.
2. Be sure to use the disc "YEDS-18" parts code: 3-702-101-01, but only when indicated.
3. Power supply voltage: DC14.4 V (more than 10 A).
4. Adjustment must be excuted whenever a board or optical block is replaced.

Focus Offset Adjustment

Procedure:

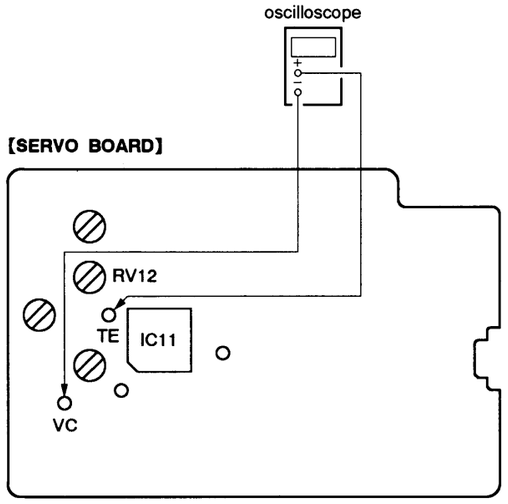


1. Connect the oscilloscope to SERVO board test point RF.
2. Put the set into play mode by loading the disc.
3. Adjust the RV13 (SERVO board) so that the waveform (eye pattern) on the oscilloscope becomes $1.4^{+0.3}_{-0.2}$ V.



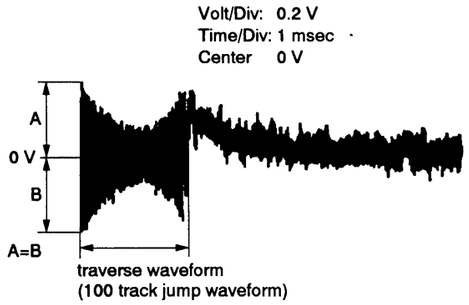
Tracking Offset Adjustment

Procedure:



1. Connect the oscilloscope to SERVO board test point TE.
2. Put the set into play mode by loading the disc.
3. Press the ⏮ or ⏭ (◀◀ or ▶▶) button, then, check the traverse waveform*.
4. Adjust RV12 (SERVO board) so that oscilloscope reading is symmetrical in relation to 0 ± 0.05 V.

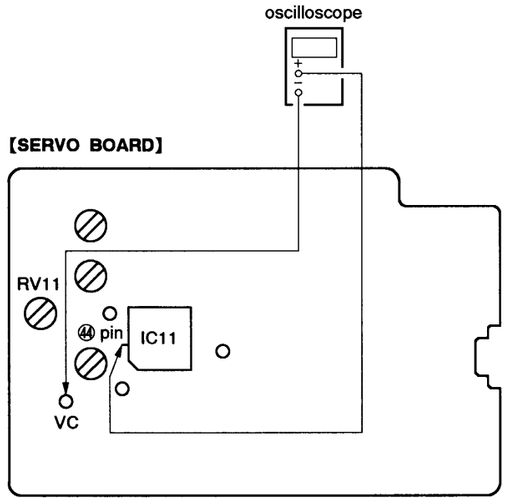
*Traverse waveform: This is the tracking error waveform appears when crossing the track.



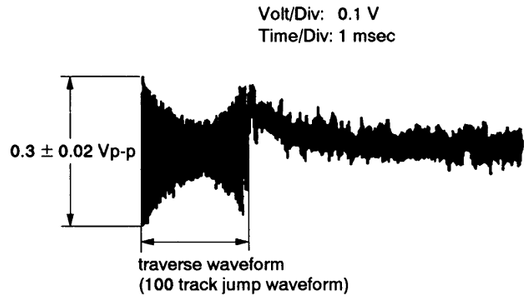
Tracking Gain Adjustment

This adjustment should be performed after focus offset and tracking offset adjustments are completed.

Procedure:



1. Connect the oscilloscope to SERVO board IC11 ㊹ pin.
2. Put the set into play mode by loading the disc.
3. Press the ⏮ or ⏭ (◀◀ or ▶▶) button, and adjust the RV11 (SERVO board) so that the traverse waveform becomes 0.3 ± 0.02 V.



Focus Gain Adjustment

This adjustment is not performed.
If focus gain VR RV14 is turned, set to mechanical center.

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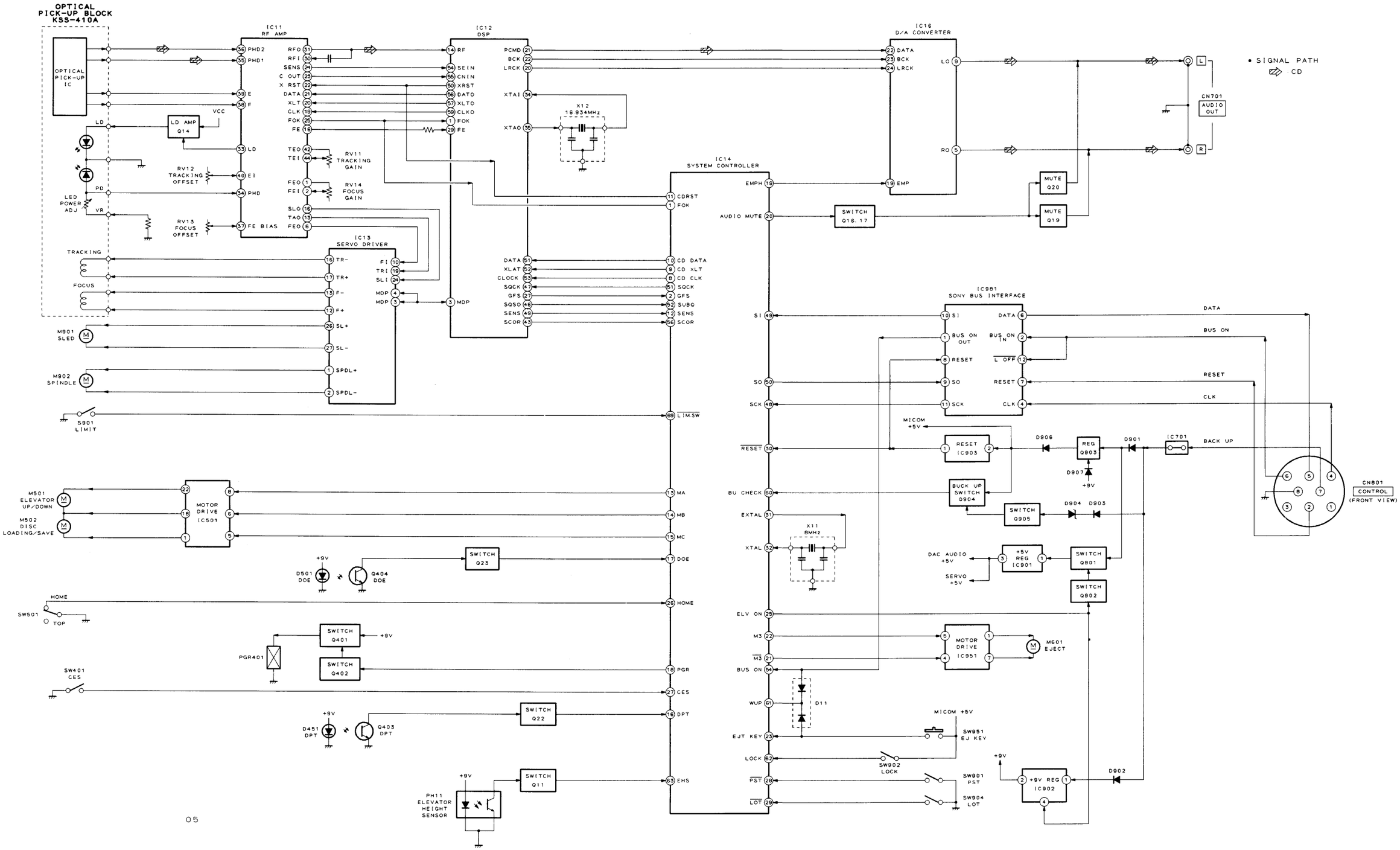
3-3. COMPACT DISC CHANGER SECTION BLOCK DIAGRAM



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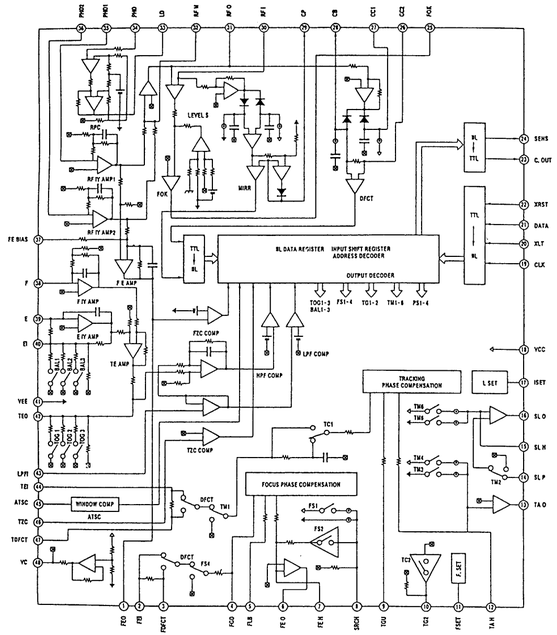
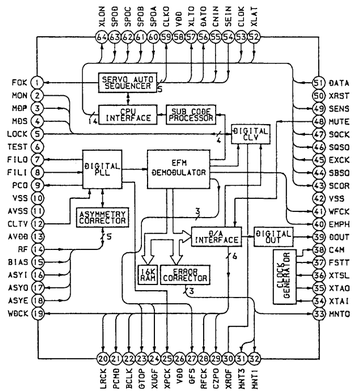
• IC Block Diagrams

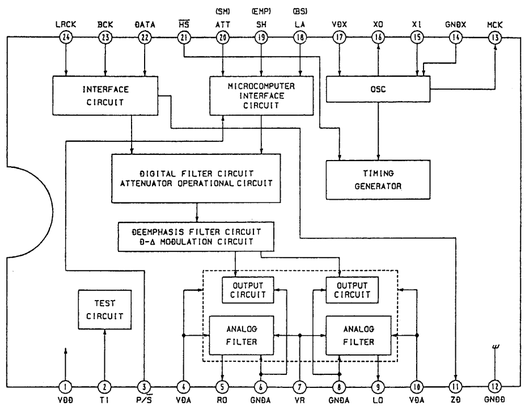
IC11 CXA1782BQ (SERVO BOARD)



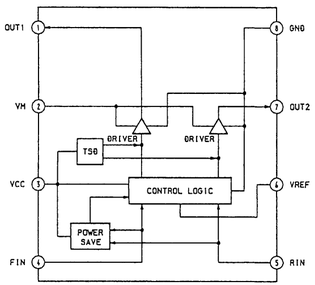
IC12 CXD2507AQ (SERVO BOARD)



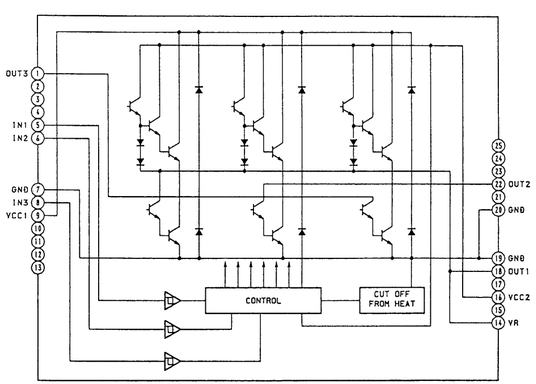
IC16 TC9404FN-EL (SERVO BOARD)



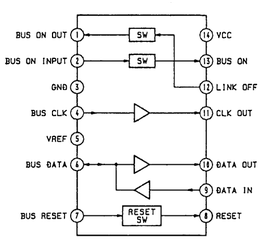
IC951 BA6287F (MD BOARD)



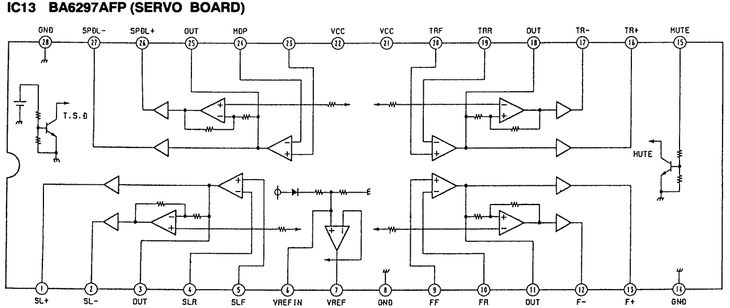
IC501 BA6247FP-Y (DRIVER BOARD)



IC981 MM1284XFFE (MD BOARD)

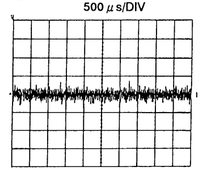


IC13 BA6297AFP (SERVO BOARD)

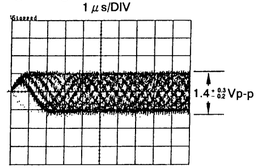


• Waveforms

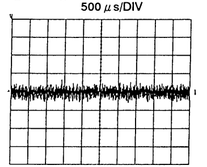
❶ IC11 ① 200V/DIV, 500 μs/DIV



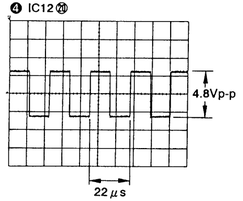
❷ IC11 ㉛ 500mV/DIV, 1 μs/DIV



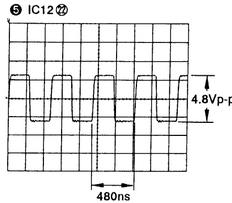
❸ IC11 ㊷ 200mV/DIV, 500 μs/DIV



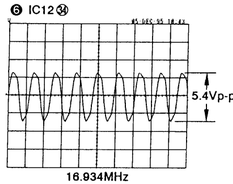
❹ IC12 ㉔



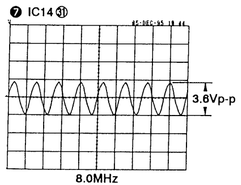
❺ IC12 ㉒



❻ IC12 ㉞



❼ IC14 ㉛



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3-4. COMPACT DISC CHANGER SECTION PRINTED WIRING BOARDS

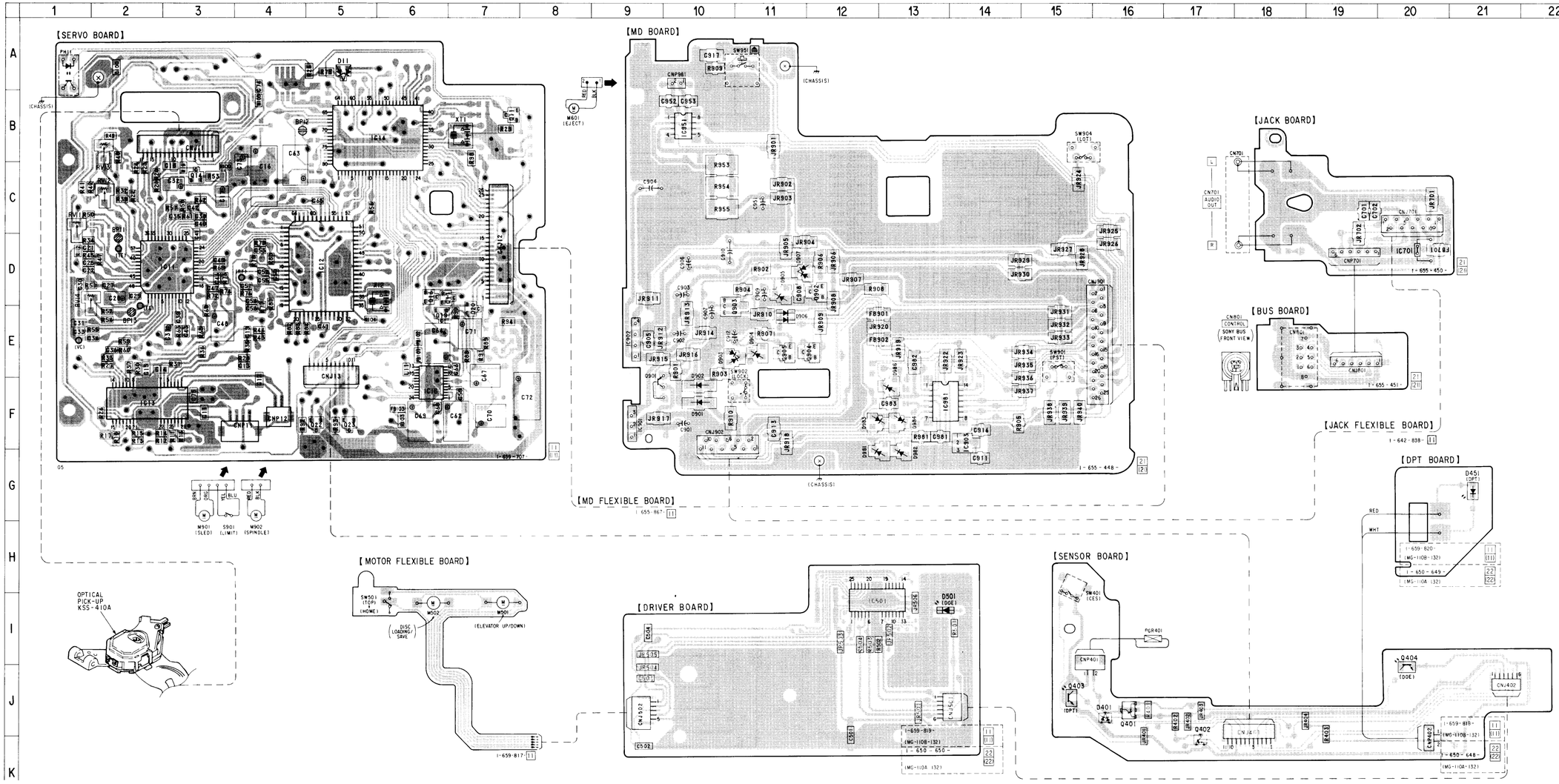
- **Semiconductor Location**

Ref. No.	Location
D11	A-5
D401	J-16
D451	G-21
D501	I-13
D901	F-10
D902	F-10
D903	E-10
D904	E-11
D905	D-11
D906	E-11
D907	D-11
D981	G-12
D982	G-13
D983	F-12
D984	F-13
D986	F-13
IC11	D-3
IC12	D-5
IC13	F-2
IC14	B-5
IC16	F-6
IC501	I-12
IC701	D-20
IC901	F-9
IC902	E-9
IC903	F-14
IC951	B-10
IC981	F-13
Q11	B-7
Q14	C-3
Q16	D-6
Q17	D-6
Q19	E-6
Q20	F-7
Q22	F-5
Q23	F-5
Q401	J-16
Q402	K-17
Q403	J-15
Q404	I-20
Q901	F-9
Q902	D-12
Q903	E-10
Q904	E-12
Q905	E-11

Note on Printed Wiring Board:

- ○——— : parts extracted from the component side.
- ● : Through hole.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)



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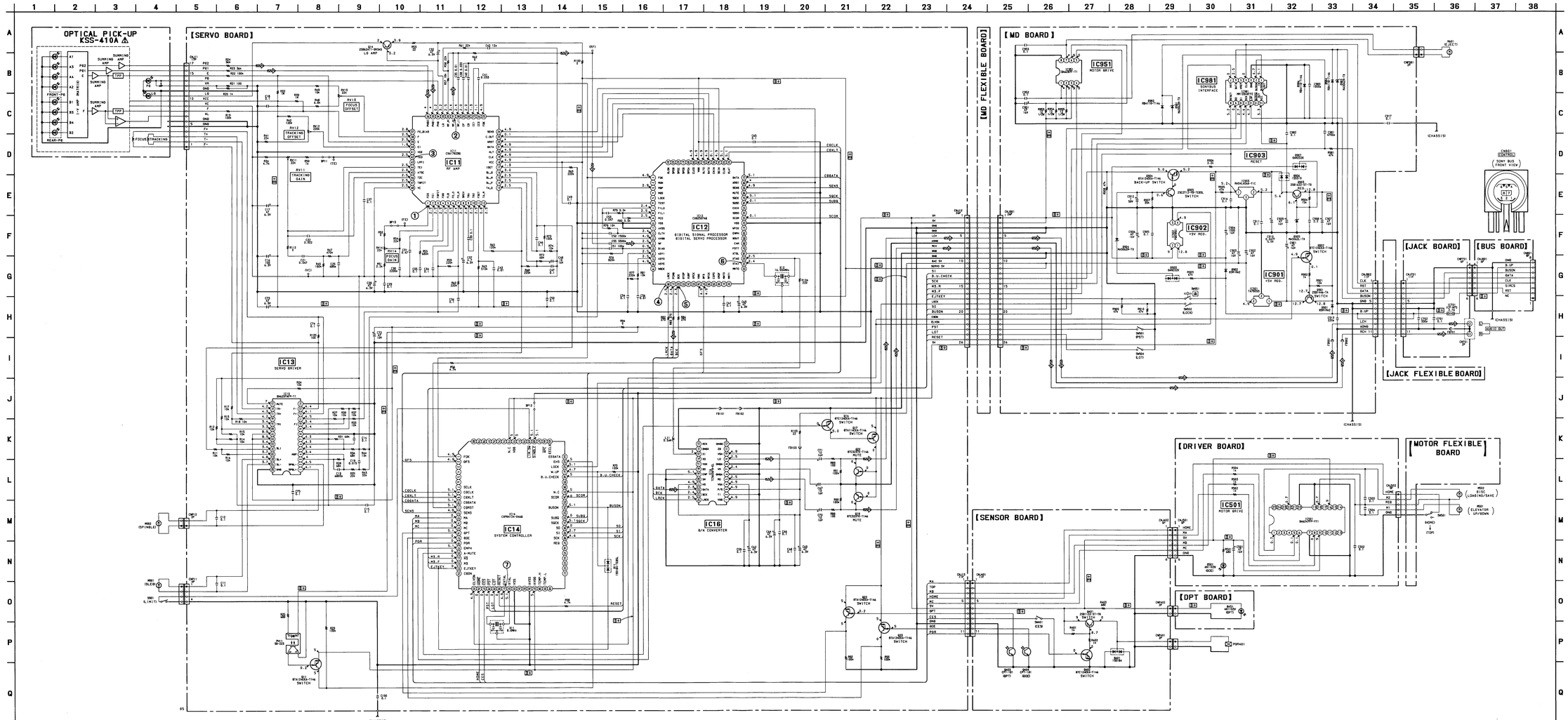
3-5. COMPACT DISC CHANGER SECTION SCHEMATIC DIAGRAM

• See page 13 for IC Block Diagrams and page 15 for Waveforms.



Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- [ ] : panel designation.

Note:	Note:
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B + : B + Line.
- [ ] : adjustment for repair.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from CD changer controller.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD

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3-6. IC PIN FUNCTION DESCRIPTION
SERVO BOARD IC14 CXP84120-046Q (SYSTEM CONTROLLER)

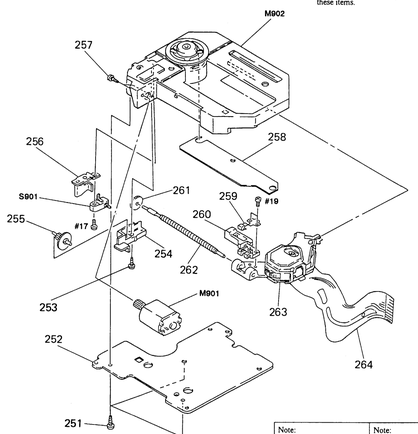
Pin No.	Pin Name	I/O	Function
1	FOK	I	Focus OK signal input
2	GFS	I	Guarded frame sync signal input
3	—	—	Not used
4	—	—	Not used
5	—	—	Not used
6	—	—	Not used
7	SCLK	O	Not used
8	CDCLK	O	Servo system control output
9	CDXLT	O	Servo system control output
10	CDDATA	O	Servo system control output
11	CDRST	O	Servo system reset . "L" : reset
12	SENS	I	Sense signal input
13	MA	O	Motor control (M501, M502)
14	MB	O	Motor control (M501, M502)
15	MC	O	Motor control (M501, M502)
16	DPT	I	Disc movement detect sensor input
17	DOE	I	Disc Pick-up position detect sensor input. Disc is above pick-up : "L"
18	PGR	O	Plunger control
19	EMPH	O	Emphasis control
20	A-MUTE	O	Audio output mute
21	$\overline{M3}$	O	Eject motor control
22	M3	O	Eject motor control
23	EJTKEY	I	Eject key input. "H" : on
24	CDON	O	Not used
25	ELVON	O	Elevator up/down, sensor power control
26	$\overline{HOME}$	I	HOME sensor input
27	$\overline{CES}$	I	Chucking end detect sensor input
28	$\overline{PST}$	I	Magazine set detect sensor input
29	$\overline{LOT}$	I	Lever open detect sensor input
30	$\overline{RESET}$	I	System reset. "L" : reset
31	EXTAL	I	System clock input
32	XTAL	O	System clock output
33	VSS	—	Ground
34	—	—	Not used
35	—	—	Not used
36	AVSS	—	Ground for A/D converter
37	AVDD	I	Power supply for A/D converter
38	TEMPH	—	Not used
39	TEMPL	—	Not used
40	—	—	Not used
41	—	—	Not used
42	—	—	Not used
43	—	—	Not used

Pin No.	Pin Name	I/O	Function
44	—	—	Not used
45	—	—	Not used
46	—	—	Not used
47	REQ	—	Not used
48	SCK	I	Serial clock input
49	SI	I	Serial data input
50	SO	O	Serial data output
51	SQCK	O	Clock for SUBQ read output
52	SUBQ	I	SUBQ data input
53		—	Not used
54	BUSON	I	"L" during controller communicating
55		—	Not used
56	SCOR	I	Sub-code sync detecting signal input
57	N.C	—	Not used (Fixed at "H")
58		—	Not used
59		—	Not used
60	B.U.CHECK	I	back up detection input. "H" : back up on
61	W.UP	I	External timer/counter input
62	LOCK	I	During locking magazine :"H"
63	EHS	I	Elevator location detection
64	EEDATA	I/O	External 16 bits timer/counter input/output (Not used)
65	EECLK	O	14 bits pulse width modulation output (Not used)
66	$\overline{APC}$	O	Not used
67	—	—	Not used
68	SINGLE	—	Not used
69	LIM.SW		Limit switch key input
70		—	Not used
71		—	Not used
72	VDD	—	Power supply
73	N.C	—	Not used
74		—	Not used
75		—	Not used
76		—	Not used
77		—	Not used
78		—	Not used
79		—	Not used
80		—	Not used

3-7. EXPLODED VIEW

OPTICAL PICK-UP SECTION (MG-153CD-131)

NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
251	3-912-536-01	SCREW (4S-1)	
* 252	3-908-094-02	BRACKET (OP)	
253	3-912-537-01	SCREW (4S-2)	
254	3-908-097-01	HOLDER (GEAR)	
255	3-908-091-01	GEAR (MID)	
256	3-908-093-01	SPRING (THRUST RETAINER)	
257	3-910-519-01	SCREW (SL)	
* 258	3-926-531-01	SHEET (OP.CD)	
259	3-384-920-01	RETAINER (SL FEED)	
260	3-908-098-01	GEAR (SL FEED)	
261	3-908-092-01	GEAR (SLED)	
262	3-914-664-01	SHAFT (SLED 2)	
⚠263	8-848-327-11	DEVICE, OPTICAL KSS-410A	
264	1-653-962-11	FLEXIBLE BOARD	
M901	X-3367-782-1	SLED MOTOR ASSY	
M902	A-3291-586-A	MOTOR (SP) ASSY (SPINDLE)	
S901	1-570-771-11	SWITCH (LIMIT)	
#17	7-685-105-19	SCREW +P 2X8 TYPE 2 NON-SLIT	
#19	7-627-852-17	+P 1.7X4	

BUS DPT DRIVER JACK

3-8. ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA . . : μA . . uPA . : μPA . .
  uPB . : μPB . . uPC . : μPC . . uPD . : μPD . .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

Ref.No.	Part No.	Description	Remark
*	1-655-451-21	BUS BOARD	
		*********	
		< CONNECTOR >	
	CN801	1-580-907-21 PLUG, CONNECTOR (CONTROL)	
*	CNJ801	1-770-589-11 HOUSING, CONNECTOR(PC BOARD) 6P	
		**********	
*		1-650-649-22 DPT BOARD (MG-110A-132)	
*		1-659-820-11 DPT BOARD (MG-110B-132)	
		*********	
		< DIODE >	
	D451	8-719-045-93 DIODE AN1102W-1-TR (DPT)	
		**********	
*		1-650-650-21 DRIVER BOARD (MG-110A-132)	
*		1-659-819-11 DRIVER BOARD (MG-110B-132)	
		**********	
		< CAPACITOR >	
	C501	1-126-204-11 ELECT CHIP 47uF 20% 16V	
	C502	1-163-038-00 CERAMIC CHIP 0.1uF 25V (MG-110A-132)	
	C502	1-165-319-11 CERAMIC CHIP 0.1uF 50V (MG-110B-132)	
	C503	1-163-038-00 CERAMIC CHIP 0.1uF 25V (MG-110A-132)	
	C503	1-165-319-11 CERAMIC CHIP 0.1uF 50V (MG-110B-132)	
	C504	1-163-038-00 CERAMIC CHIP 0.1uF 25V (MG-110A-132)	
	C504	1-165-319-11 CERAMIC CHIP 0.1uF 50V (MG-110B-132)	
		< CONNECTOR >	
	CNJ501	1-764-436-21 CONNECTOR, FPC 6P	
*	CNJ502	1-750-248-21 CONNECTOR, FPC 5P	

Ref.No.	Part No.	Description	Remark
		< DIODE >	
	D501	8-719-045-93 DIODE AN1102W-1-TR (DOE)	
		< IC >	
	IC501	8-759-070-68 IC BA6247FP-Y	
		< CHIP CONDUCTOR >	
	JR501	1-216-296-00 CONDUCTOR, CHIP (3216)	
	JR502	1-216-296-00 CONDUCTOR, CHIP (3216)	
	JR503	1-216-296-00 CONDUCTOR, CHIP (3216)	
	JR504	1-216-296-00 CONDUCTOR, CHIP (3216)	
	JR505	1-216-296-00 CONDUCTOR, CHIP (3216)	
	JR506	1-216-296-00 CONDUCTOR, CHIP (3216)	
		< RESISTOR >	
	R501	1-216-045-00 METAL CHIP 680 5% 1/10W	
	R502	1-216-049-00 METAL GLAZE 1K 5% 1/10W	
	R503	1-216-049-00 METAL GLAZE 1K 5% 1/10W	
	R504	1-216-049-00 METAL GLAZE 1K 5% 1/10W	
*		1-655-450-21 JACK BOARD	
		**********	
		< CAPACITOR >	
	C701	1-163-038-00 CERAMIC CHIP 0.1uF 25V	
	C702	1-163-263-11 CERAMIC CHIP 330PF 5% 50V	
		< CONNECTOR >	
	CN701	1-580-441-11 JACK, PIN 2P (AUDIO OUT L/R)	
	CNJ701	1-573-549-11 SOCKET, CONNECTOR 11P	
*	CNP701	1-770-588-11 PIN, CONNECTOR (PC BOARD) 6P	

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JACK MD

Ref.No.	Part No.	Description			Remark
		< CHIP CONDUCTOR >			
FB701	1-216-296-00	CONDUCTOR, CHIP	(3216)		
		< IC LINK >			
IC701	1-532-686-21	LINK, IC			
		< CHIP CONDUCTOR >			
JR701	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR702	1-216-296-00	CONDUCTOR, CHIP	(3216)		
**********					
*	A-3298-465-A	MD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C901	1-126-786-11	ELECT	47uF	20%	16V
C902	1-126-786-11	ELECT	47uF	20%	16V
C903	1-126-786-11	ELECT	47uF	20%	16V
C904	1-115-466-11	ELECT	1000uF	20%	16V
C905	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C906	1-126-786-11	ELECT	47uF	20%	16V
C907	1-126-786-11	ELECT	47uF	20%	16V
C908	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C909	1-126-786-11	ELECT	47uF	20%	16V
C910	1-125-701-11	CAPACITOR	0.047F		5.5V
C911	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C912	1-115-871-11	ELECT	1uF	20%	50V
C913	1-163-189-00	CERAMIC CHIP	220PF	5%	50V
C916	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C917	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C951	1-126-786-11	ELECT	47uF	20%	16V
C952	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C953	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C981	1-163-029-11	CERAMIC CHIP	0.0047uF		50V
C982	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C983	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CNJ901	1-764-391-11	CONNECTOR, FFC/FPC (ZIF) 26P			
CNJ902	1-573-549-11	SOCKET, CONNECTOR 11P			
* CNP981	1-506-998-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D901	8-719-210-33	DIODE	EC10DS2		
D902	8-719-210-33	DIODE	EC10DS2		
D903	8-719-914-43	DIODE	DAN202K		
D904	8-719-401-63	DIODE	MA3062M-TX		
D905	8-719-400-53	DIODE	MA3062-L		
D906	8-719-038-48	DIODE	1SS319(TE85R)		
D907	8-719-914-43	DIODE	DAN202K		
D981	8-719-401-63	DIODE	MA3062M-TX		
D982	8-719-975-40	DIODE	RB411D		
D983	8-719-401-63	DIODE	MA3062M-TX		
D984	8-719-975-40	DIODE	RB411D		
D986	8-719-975-40	DIODE	RB411D		
		< FERRITE BEAD >			
FB901	1-500-121-21	BEAD, FERRITE (CHIP)			
FB902	1-500-121-21	BEAD, FERRITE (CHIP)			
		< IC >			
IC901	8-759-231-53	IC	TA7805S		
IC902	8-759-054-12	IC	PQ09RA1		
IC903	8-759-443-41	IC	RH5VL40AA-T1C		
IC951	8-759-040-83	IC	BA6287F		
IC981	8-759-284-87	IC	MM1284XFFE		
		< CHIP CONDUCTOR >			
JR901	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR902	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR903	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR904	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR905	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR906	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR907	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR908	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR909	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR910	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR911	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR912	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR913	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR914	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR915	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR916	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR917	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR918	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR919	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR920	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR922	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR923	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR924	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR925	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR926	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR927	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR928	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR929	1-216-296-00	CONDUCTOR, CHIP	(3216)		

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Ref. No.	Part No.	Description			Remark
JR930	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR931	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR932	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR933	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR934	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR935	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR936	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR937	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR938	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR939	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR940	1-216-296-00	CONDUCTOR, CHIP	(3216)		
		< TRANSISTOR >			
Q901	8-729-016-83	TRANSISTOR	2SB1446		
Q902	8-729-027-52	TRANSISTOR	DTC124EKA-T146		
Q903	8-729-822-05	TRANSISTOR	2SD1622-ST-TD		
Q904	8-729-027-31	TRANSISTOR	DTA124EKA-T146		
Q905	8-729-230-49	TRANSISTOR	2SC2712-YG		
		< RESISTOR >			
R901	1-216-073-00	METAL CHIP	10K	5%	1/10W
R902	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R903	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R904	1-216-077-00	METAL CHIP	15K	5%	1/10W
R905	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R906	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R907	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R908	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R909	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R910	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R953	1-218-279-11	METAL GLAZE	12	5%	1/2W
R954	1-218-279-11	METAL GLAZE	12	5%	1/2W
R955	1-218-279-11	METAL GLAZE	12	5%	1/2W
R981	1-216-089-00	METAL GLAZE	47K	5%	1/10W
		< SWITCH >			
SW901	1-571-958-11	SWITCH, PUSH (1 KEY) (PST)			
SW902	1-692-864-21	SWITCH, PUSH (1 KEY) (LOCK)			
SW904	1-571-958-11	SWITCH, PUSH (1 KEY) (LOT)			
SW951	1-571-532-21	SWITCH, TACTIL (⏏)			
**********					
*	1-650-648-22	SENSOR BOARD (MG-110A-132)			
*	1-659-818-11	SENSOR BOARD (MG-110B-132)			
		**********			
		< CONNECTOR >			
CNJ401	1-764-437-21	CONNECTOR, FPC 11P			
CNJ402	1-764-436-21	CONNECTOR, FPC 6P			
CNP401	1-580-055-21	PIN, CONNECTOR 2P			
* CNP402	1-695-320-21	PIN, CONNECTOR (1.5MM) (SMD) 2P			
		< DIODE >			
D401	8-719-801-78	DIODE	1SS184		
		< CHIP CONDUCTOR >			
JR401	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR402	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR403	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR404	1-216-296-00	CONDUCTOR, CHIP	(3216)		
		< TRANSISTOR >			
Q401	8-729-804-41	TRANSISTOR	2SB1122-S		
Q402	8-729-027-52	TRANSISTOR	DTC124EKA-T146		
Q403	8-729-024-26	PHOTO TRANSISTOR	CPT-181S-C-TU (DPT)		
Q404	8-729-024-26	PHOTO TRANSISTOR	CPT-181S-C-TU (DOE)		
		< RESISTOR >			
R401	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R402	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R403	1-216-194-00	METAL CHIP	680	5%	1/8W
		< SWITCH >			
SW401	1-571-754-31	SWITCH, PUSH (1 KEY) (CES)			
**********					
	A-3309-046-A	SERVO BOARD, COMPLETE			
		**********			
	3-912-537-01	SCREW (45-2)			
*	3-924-929-12	SHEET (EV.CD), INSULATING			
		< CAPACITOR >			
C11	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C12	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C13	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C14	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C15	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C16	1-110-450-11	SOLID CHIP	100uF	20%	6.3V
C17	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C18	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C19	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C21	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C22	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C25	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C27	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C28	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C29	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C30	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V

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Ref. No.	Part No.	Description			Remark
C31	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C32	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C33	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C34	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C35	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C36	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C37	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C38	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C39	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C40	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C41	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C42	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C43	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C46	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C47	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C48	1-110-454-11	SOLID CHIP	10uF	20%	16V
C49	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C50	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C51	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C52	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C53	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C54	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C55	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C56	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C59	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C61	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C62	1-110-449-11	SOLID CHIP	47uF	20%	6.3V
C63	1-110-449-11	SOLID CHIP	47uF	20%	6.3V
C64	1-110-449-11	SOLID CHIP	47uF	20%	6.3V
C65	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C66	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C67	1-110-454-11	SOLID CHIP	10uF	20%	16V
C68	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C69	1-110-449-11	SOLID CHIP	47uF	20%	6.3V
C70	1-110-454-11	SOLID CHIP	10uF	20%	16V
C71	1-110-454-11	SOLID CHIP	10uF	20%	16V
C72	1-110-452-11	SOLID CHIP	47uF	20%	10V
C73	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C74	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C75	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C100	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CNJ11	1-764-438-21	CONNECTOR, FPC 17P			
CNJ12	1-770-351-11	CONNECTOR, FPC 26P			
CNJ13	1-764-439-21	CONNECTOR, FPC 11P			
CNP11	1-580-057-11	PIN, CONNECTOR 4P			
CNP12	1-580-055-21	PIN, CONNECTOR 2P			

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D11	8-719-801-78	DIODE 1SS184	
		< FERRITE BEAD >	
FB101	1-550-907-21	BEAD, FERRITE (CHIP)	
FB102	1-550-907-21	BEAD, FERRITE (CHIP)	
FB103	1-550-907-21	BEAD, FERRITE (CHIP)	
		< IC >	
IC11	8-752-069-56	IC CXA1782BQ	
IC12	8-752-372-94	IC CXD2507AQ	
IC13	8-759-071-79	IC BA6297AFP	
IC14	8-752-845-51	IC CXP84120-046Q	
IC16	8-759-327-78	IC TC9404FN-EL	
		< COIL >	
L11	1-412-985-31	INDUCTOR 3.3uH	
		< PHOTO INTERRUPTER >	
PH11	8-749-925-02	PHOTO INTERRUPTER SG-223	
		< TRANSISTOR >	
Q11	8-729-027-31	TRANSISTOR DTA124EKA-T146	
Q14	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q16	8-729-027-52	TRANSISTOR DTC124EKA-T146	
Q17	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q19	8-729-015-39	TRANSISTOR DTC323TK	
Q20	8-729-015-39	TRANSISTOR DTC323TK	
Q22	8-729-027-31	TRANSISTOR DTA124EKA-T146	
Q23	8-729-027-31	TRANSISTOR DTA124EKA-T146	
		< RESISTOR >	
R11	1-216-833-11	METAL CHIP 10K 5%	1/16W
R12	1-216-833-11	METAL CHIP 10K 5%	1/16W
R13	1-216-833-11	METAL CHIP 10K 5%	1/16W
R14	1-216-833-11	METAL CHIP 10K 5%	1/16W
R15	1-216-833-11	METAL CHIP 10K 5%	1/16W
R16	1-216-833-11	METAL CHIP 10K 5%	1/16W
R17	1-216-833-11	METAL CHIP 10K 5%	1/16W
R18	1-216-833-11	METAL CHIP 10K 5%	1/16W
R19	1-216-845-11	METAL CHIP 100K 5%	1/16W
R20	1-216-821-11	METAL CHIP 1K 5%	1/16W
R21	1-216-809-11	METAL CHIP 100 5%	1/16W
R22	1-216-845-11	METAL CHIP 100K 5%	1/16W
R23	1-202-926-11	METAL GLAZE 36K 5%	1/16W
R24	1-202-926-11	METAL GLAZE 36K 5%	1/16W
R25	1-216-045-00	METAL CHIP 680 5%	1/10W

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Ref. No.	Part No.	Description			Remark
R26	1-216-833-11	METAL CHIP	10K	5%	1/16W
R27	1-216-833-11	METAL CHIP	10K	5%	1/16W
R28	1-216-843-11	METAL CHIP	68K	5%	1/16W
R29	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R30	1-216-833-11	METAL CHIP	10K	5%	1/16W
R31	1-216-843-11	METAL CHIP	68K	5%	1/16W
R32	1-216-857-11	METAL CHIP	1M	5%	1/16W
R33	1-216-833-11	METAL CHIP	10K	5%	1/16W
R34	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R35	1-216-837-11	METAL CHIP	22K	5%	1/16W
R36	1-216-843-11	METAL CHIP	68K	5%	1/16W
R37	1-216-833-11	METAL CHIP	10K	5%	1/16W
R39	1-216-857-11	METAL CHIP	1M	5%	1/16W
R41	1-216-837-11	METAL CHIP	22K	5%	1/16W
R42	1-216-846-11	METAL CHIP	120K	5%	1/16W
R43	1-216-839-11	METAL CHIP	33K	5%	1/16W
R44	1-216-994-11	METAL GLAZE	13K	5%	1/16W
R45	1-216-848-11	METAL CHIP	180K	5%	1/16W
R47	1-216-853-11	METAL CHIP	470K	5%	1/16W
R48	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R49	1-216-833-11	METAL CHIP	10K	5%	1/16W
R50	1-216-821-11	METAL CHIP	1K	5%	1/16W
R51	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R52	1-216-864-11	METAL CHIP	0	5%	1/16W
R53	1-216-158-00	METAL GLAZE	22	5%	1/8W
R54	1-216-837-11	METAL CHIP	22K	5%	1/16W
R55	1-216-855-11	METAL CHIP	680K	5%	1/16W
R56	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R57	1-216-836-11	METAL CHIP	18K	5%	1/16W
R58	1-216-837-11	METAL CHIP	22K	5%	1/16W
R59	1-216-849-11	METAL CHIP	220K	5%	1/16W
R60	1-216-849-11	METAL CHIP	220K	5%	1/16W
R61	1-216-837-11	METAL CHIP	22K	5%	1/16W
R62	1-216-864-11	METAL CHIP	0	5%	1/16W
R63	1-218-273-11	METAL GLAZE	510K	5%	1/16W
R65	1-216-846-11	METAL CHIP	120K	5%	1/16W
R68	1-216-849-11	METAL CHIP	220K	5%	1/16W
R69	1-216-849-11	METAL CHIP	220K	5%	1/16W
R72	1-216-843-11	METAL CHIP	68K	5%	1/16W
R73	1-216-845-11	METAL CHIP	100K	5%	1/16W
R74	1-216-833-11	METAL CHIP	10K	5%	1/16W
R75	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R76	1-216-856-11	METAL CHIP	820K	5%	1/16W
R77	1-216-849-11	METAL CHIP	220K	5%	1/16W
R78	1-216-833-11	METAL CHIP	10K	5%	1/16W
R79	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R80	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R81	1-216-833-11	METAL CHIP	10K	5%	1/16W
R82	1-216-814-11	METAL CHIP	270	5%	1/16W
R83	1-216-814-11	METAL CHIP	270	5%	1/16W
R84	1-216-814-11	METAL CHIP	270	5%	1/16W
R88	1-216-809-11	METAL CHIP	100	5%	1/16W
R89	1-216-809-11	METAL CHIP	100	5%	1/16W
R90	1-216-845-11	METAL CHIP	100K	5%	1/16W
R91	1-216-845-11	METAL CHIP	100K	5%	1/16W
R92	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R93	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R94	1-216-295-00	CONDUCTOR, CHIP			(2012)
R98	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R100	1-216-864-11	METAL CHIP	0	5%	1/16W
R103	1-216-009-00	METAL CHIP	22	5%	1/10W
R104	1-216-813-11	METAL CHIP	220	5%	1/16W
R105	1-216-809-11	METAL CHIP	100	5%	1/16W
R112	1-216-864-11	METAL CHIP	0	5%	1/16W
		< VARIABLE RESISTOR >			
RV11	1-238-091-11	RES, ADJ, CERMET	22K		
RV12	1-238-094-11	RES, ADJ, CERMET	220K		
RV13	1-238-091-11	RES, ADJ, CERMET	22K		
RV14	1-238-091-11	RES, ADJ, CERMET	22K		
		< VIBRATOR >			
X11	1-760-479-11	VIBRATOR, CERAMIC (8.0MHz)			
X12	1-760-241-11	VIBRATOR, CERAMIC (16.934MHz)			

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9-959-909-84

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CDX-51/51RF

SONY

SERVICE MANUAL

US Model
Canadian Model
E Model
AEP Model
UK Model

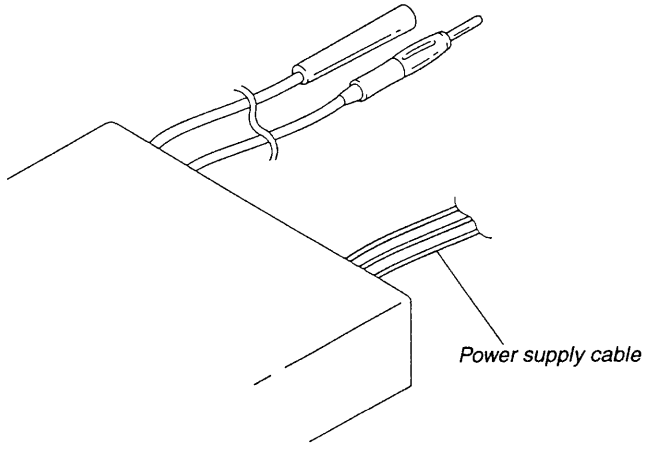
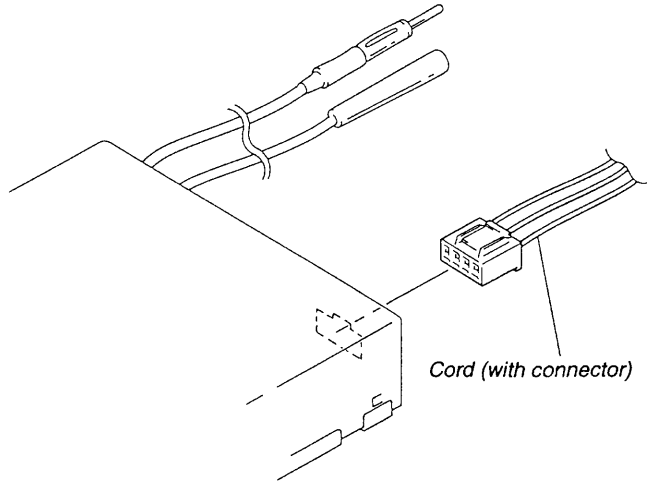
SUPPLEMENT-3

File this supplement with the service manual.

Subject: Hideaway Unit Modification

(ENG-96020)

• **New/Former Discrimnation**

Former Type	New Type
	

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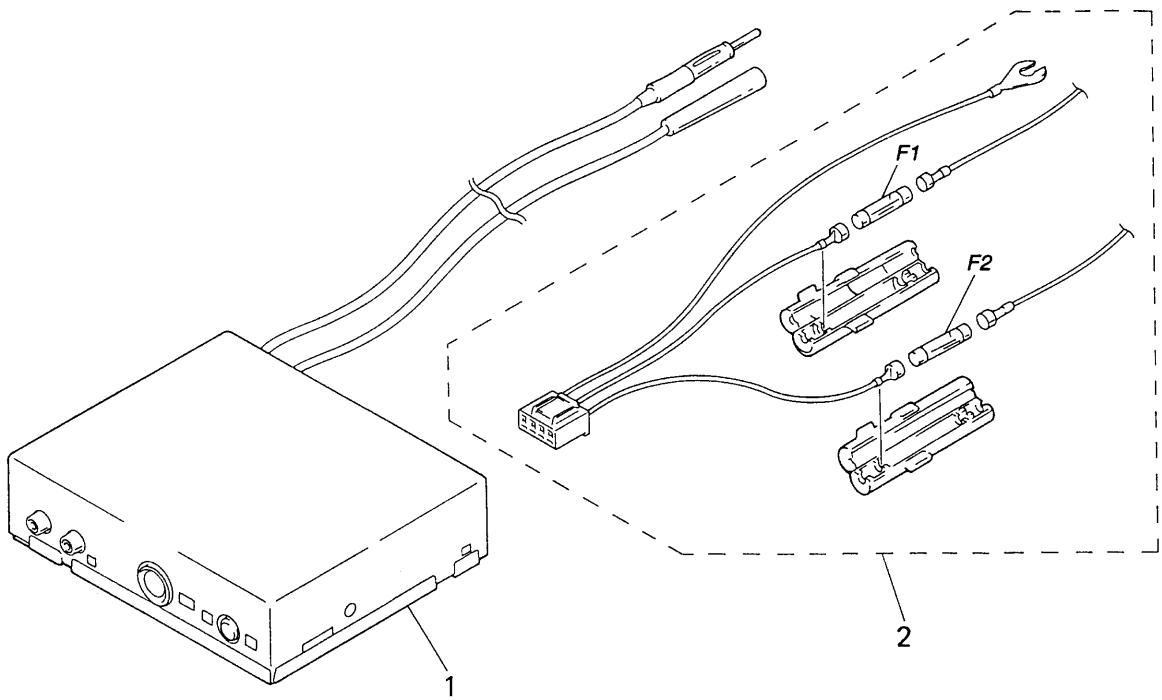
EXPLODED VIEW

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearrance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	1-473-881-11	RF UNIT (HIDEAWAY)		F1	1-532-416-00	FUSE (3.15A)	
2	1-777-519-11	CORD (WITH CONNECTOR)		F2	1-532-360-XX	FUSE (1A)	

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CDX-51/51RF

SONY

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

SUPPLEMENT-4

File this supplement with the service manual.

Subject: Optical Pick-up Block Modification

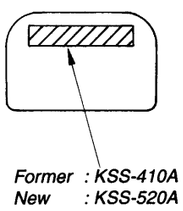
(ENG-96025)

Optical pick-up block was been changed from MG-153CD-131 to MG-154CD-131 in the midst of production. At the same time, servo board was been changed.

1. NEW/FORMER DISCRIMINATION

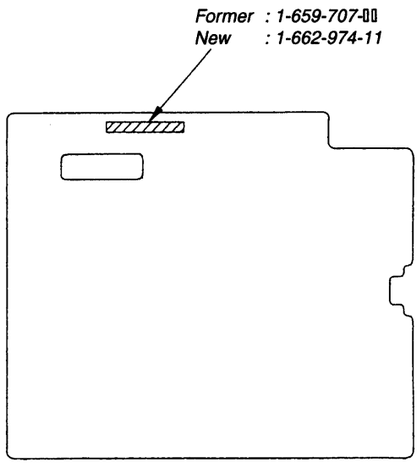
• Optical Pick-up

Label stuck outside of the optical pick-up



Former : KSS-410A
New : KSS-520A

• Servo Board – Conductor Side –

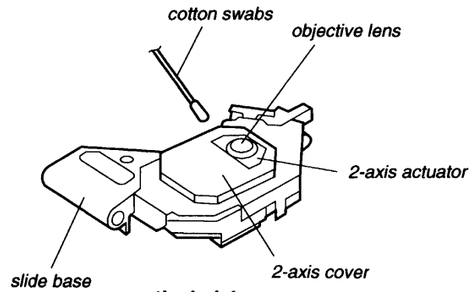


2. SERVICING NOTES

NOTES ON PICK-UP FLEXIBLE BOARD

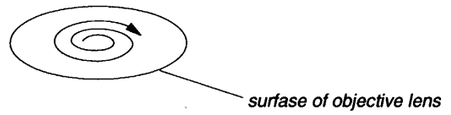
The pick-up flexible board in this set is secured to the optical pick-up with an adhesive tape. Once the tape is removed, an adhering force becomes weak, and it cannot be reused.
Therefore, if the optical pick-up is replaced, replace also the pick-up flexible board with a new one.

NOTES ON CLEANING THE OBJECTIVE LENS



optical pick-up

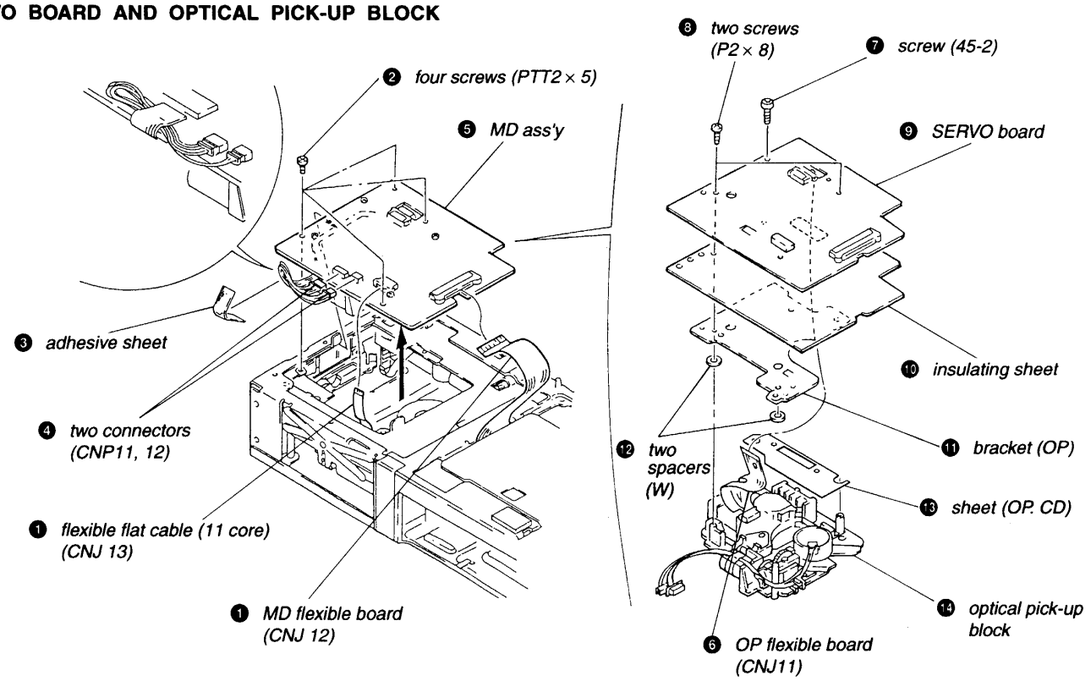
Apply CD lens cleaner B-4 (Part No.: J-2501-000-A) to cotton swabs (narrow type) (Part No.: J-2501-023-A) to be lightly wet. Use a force (about 5 g (0.18 oz)) to make the objective lens in contact with the bottom lightly, and clean the lens by spirals as following below.
Replace the cotton swab and repeat this cleaning two or three times.



Notes:
Do not force to push the objective lens. Otherwise, the plate spring supporting the objective lens will be bent, causing a deteriorated RF waveform.
Never touch anything other than the objective lens. Otherwise, a significant deterioration occurs in the RF waveform.

3. DISASSEMBLY

SERVO BOARD AND OPTICAL PICK-UP BLOCK


❽ two screws (P2 × 8)
❼ screw (45-2)
❷ four screws (PTT2 × 5)
❺ MD ass'y
❾ SERVO board
❸ adhesive sheet
❿ insulating sheet
❹ two connectors (CNP11, 12)
⓫ bracket (OP)
⓬ two spacers (W)
⓭ sheet (OP. CD)
❶ flexible flat cable (11 core) (CNJ 13)
⓮ optical pick-up block
❶ MD flexible board (CNJ 12)
❻ OP flexible board (CNJ11)

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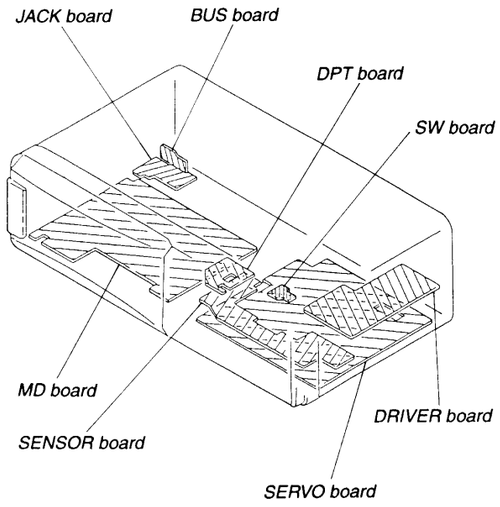
4. DIAGRAMS

• Circuit Boards Location



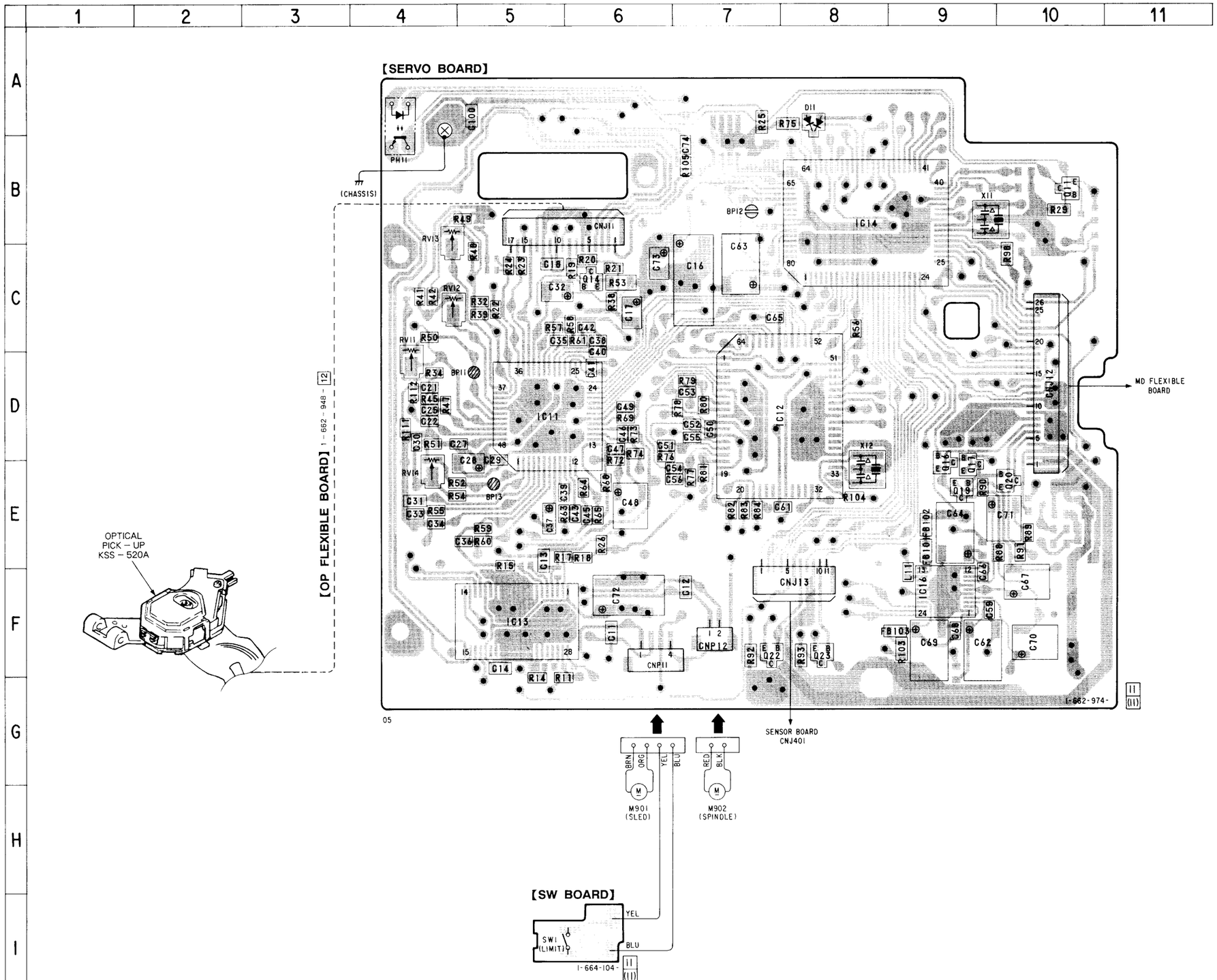
• Semiconductor Location

Ref. No.	Location
D11	A-8
IC11	D-5
IC12	D-7
IC13	F-5
IC14	B-8
IC16	F-9
Q11	B-10
Q14	C-6
Q16	E-9
Q17	E-9
Q19	E-9
Q20	E-10
Q22	F-7
Q23	F-8

Note on Printed Wiring Board:

- o——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ● : Through hole.
- △ : internal component.
- ▒▒ : Pattern from the side which enables seeing.

4-1. PRINTED WIRING BOARDS



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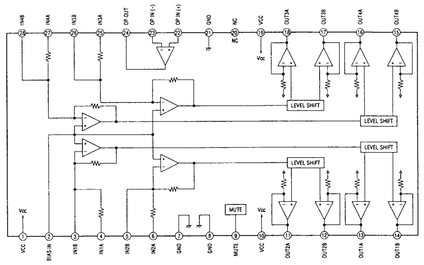
4-2. SCHEMATIC DIAGRAM

• IC Block Diagram

IC13 BA5941FP-E2 (SERVO BOARD)

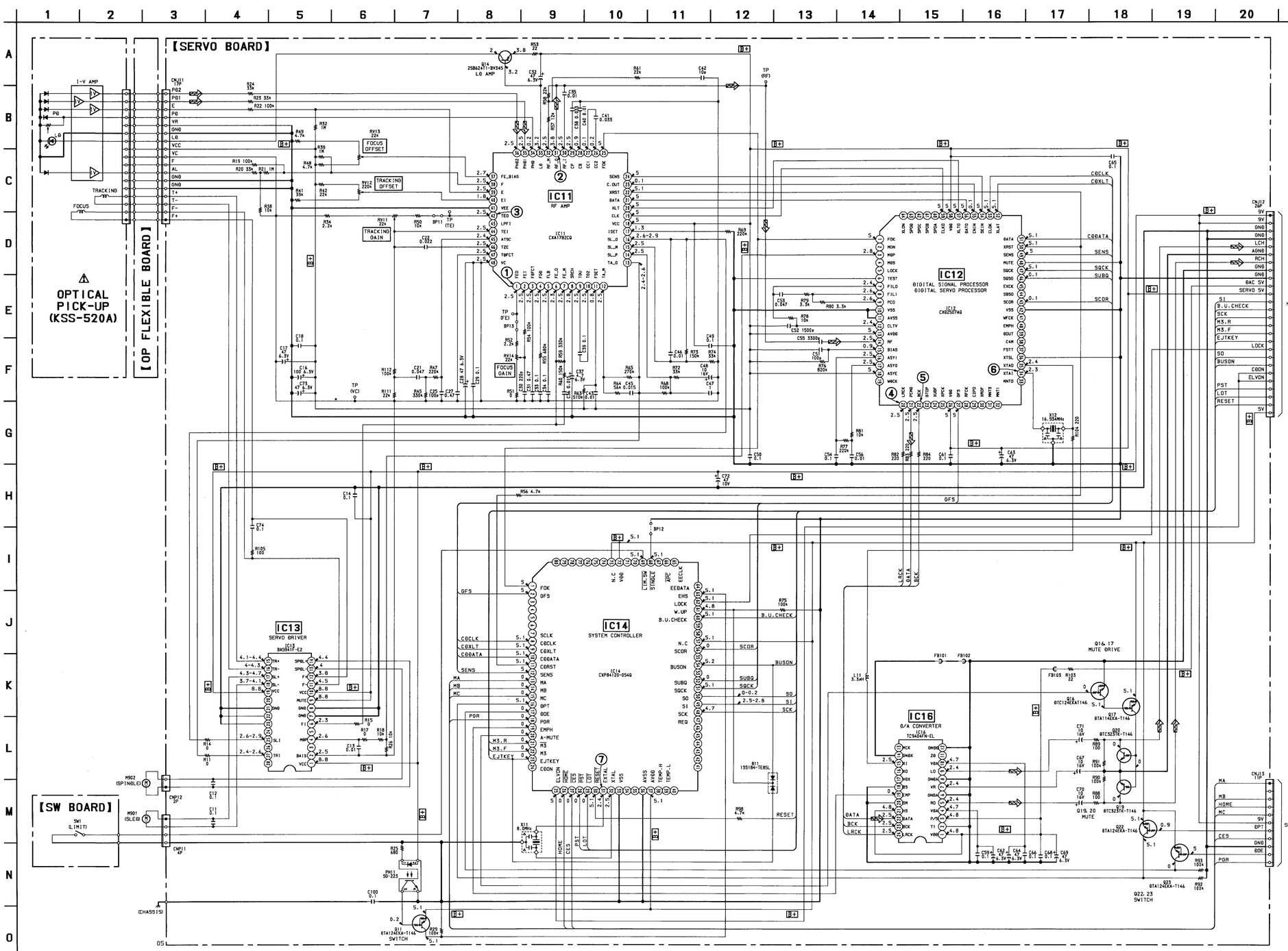


Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from CD changer controller.
- Voltages are dc with respect to ground under no-signal conditions.
  no mark : CD PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD



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5. EXPLODED VIEWS

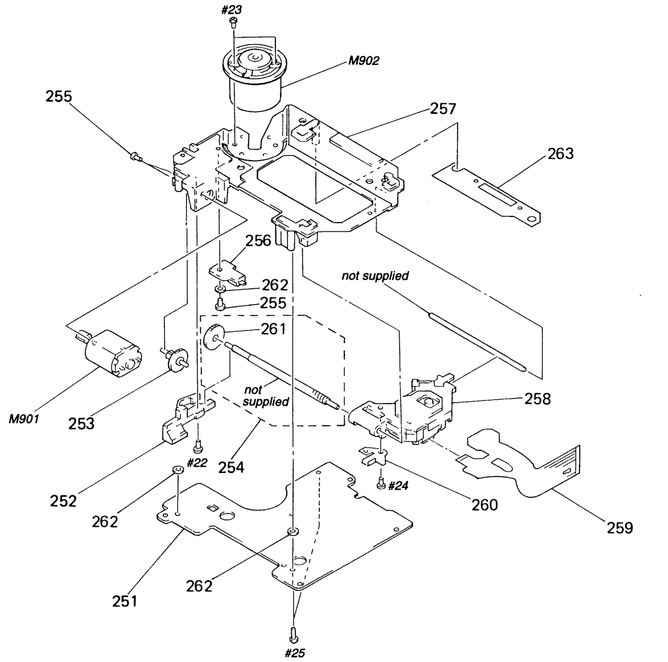
NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le neméro spécifié.

OPTICAL PICK-UP SECTION (MG-154CD-131)



Ref.No.	Part No.	Description	Remark
* 251	3-908-094-02	BRACKET (OP)	
252	3-008-800-01	HOLDER, GEAR	
253	3-908-091-01	GEAR (MID)	
254	A-3291-896-A	GEAR (SLED) ASSY	
255	3-910-519-01	SCREW (SL)	
* 256	1-664-104-11	SW BOARD	
* 257	3-008-798-01	CHASSIS (O/S)	
⚠258	8-848-402-02	OPTICAL PICK-UP KSS-520A/J-N	
259	1-662-948-11	OP FLEXIBLE BOARD	
260	3-931-834-01	SPRING (FEED), PLATE	
261	3-908-092-01	GEAR (SLED)	
262	3-387-948-01	SPACER (W)	
263	3-926-531-01	SHEET (OP.CD)	
M901	A-3291-895-A	MOTOR (SLED) ASSY	
M902	A-3291-897-A	MOTOR (SP) ASSY (SPINDLE)	
#22	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
#23	7-627-552-07	SCREW, PRECISION +P 1.7X2.5 NON-SLIT	
#24	7-627-553-37	SCREW, PRECISION +P 2X3	
#25	7-685-105-19	TAPPING +P 2X8 NON-SLIT	

6. ELECTLICAL PARTS LIST

SERVO

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

Ref.No.	Part No.	Description			Remark
		A-3309-932-A SERVO BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C11	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C12	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C13	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C14	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C16	1-110-450-11	SOLID CHIP	100uF	20%	6.3V
C17	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C18	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C21	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C22	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C25	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C27	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C28	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C29	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C30	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C31	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C32	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C33	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C34	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C35	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C36	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C37	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C38	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C39	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C40	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C41	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C42	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C43	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C45	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C46	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C47	1-115-156-11	CERAMIC CHIP	1uF		10V
C48	1-110-454-11	SOLID CHIP	10uF	20%	16V
C49	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C50	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C51	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C52	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C53	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C54	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C55	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C56	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C59	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C61	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C62	1-110-449-11	SOLID CHIP	47uF	20%	6.3V
C63	1-110-449-11	SOLID CHIP	47uF	20%	6.3V
C64	1-110-449-11	SOLID CHIP	47uF	20%	6.3V
C65	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C66	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C67	1-110-454-11	SOLID CHIP	10uF	20%	16V
C68	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C69	1-110-449-11	SOLID CHIP	47uF	20%	6.3V
C70	1-110-454-11	SOLID CHIP	10uF	20%	16V
C71	1-110-454-11	SOLID CHIP	10uF	20%	16V
C72	1-110-452-11	SOLID CHIP	47uF	20%	10V
C73	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C74	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C100	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CNJ11	1-764-438-21	CONNECTOR, FPC 17P			
CNJ12	1-770-351-11	CONNECTOR, FPC 26P			
CNJ13	1-764-439-21	CONNECTOR, FPC 11P			
CNP11	1-580-057-11	PIN, CONNECTOR 4P			
CNP12	1-580-055-21	PIN, CONNECTOR 2P			
		< DIODE >			
D11	8-719-801-78	DIODE 1SS184			

SERVO

Ref.No.	Part No.	Description			Remark
		< FERRITE BEAD >			
FB101	1-550-907-21	BEAD, FERRITE (CHIP)			
FB102	1-550-907-21	BEAD, FERRITE (CHIP)			
FB103	1-550-907-21	BEAD, FERRITE (CHIP)			
		< IC >			
IC11	8-752-074-34	IC CXA1782CQ			
IC12	8-752-372-94	IC CXD2507AQ			
IC13	8-759-429-32	IC BA5941FP-E2			
IC14	8-752-882-36	IC CXP84120-059Q			
IC16	8-759-327-78	IC TC9404FN-EL			
		< COIL >			
L11	1-412-985-31	INDUCTOR 3.3uH			
		< PHOTO INTERRUPTER >			
PH11	8-749-925-02	PHOTO INTERRUPTER SG-223			
		< TRANSISTOR >			
Q11	8-729-027-31	TRANSISTOR DTA124EKA-T146			
Q14	8-729-141-48	TRANSISTOR 2SB624-BV345			
Q16	8-729-027-52	TRANSISTOR DTC124EKA-T146			
Q17	8-729-027-23	TRANSISTOR DTA114EKA-T146			
Q19	8-729-015-39	TRANSISTOR DTC323TK			
Q20	8-729-015-39	TRANSISTOR DTC323TK			
Q22	8-729-027-31	TRANSISTOR DTA124EKA-T146			
Q23	8-729-027-31	TRANSISTOR DTA124EKA-T146			
		< RESISTOR >			
R11	1-216-864-11	METAL CHIP	0	5%	1/16W
R14	1-216-864-11	METAL CHIP	0	5%	1/16W
R15	1-216-864-11	METAL CHIP	0	5%	1/16W
R17	1-216-864-11	METAL CHIP	0	5%	1/16W
R18	1-216-833-11	METAL CHIP	10K	5%	1/16W
R19	1-216-845-11	METAL CHIP	100K	5%	1/16W
R20	1-216-839-11	METAL CHIP	33K	5%	1/16W
R21	1-216-857-11	METAL CHIP	1M	5%	1/16W
R22	1-216-845-11	METAL CHIP	100K	5%	1/16W
R23	1-216-839-11	METAL CHIP	33K	5%	1/16W
R24	1-216-839-11	METAL CHIP	33K	5%	1/16W
R25	1-216-045-00	METAL CHIP	680	5%	1/10W
R26	1-216-833-11	METAL CHIP	10K	5%	1/16W
R29	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R32	1-216-857-11	METAL CHIP	1M	5%	1/16W
R34	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R38	1-216-833-11	METAL CHIP	10K	5%	1/16W
R39	1-216-857-11	METAL CHIP	1M	5%	1/16W
R41	1-216-840-11	METAL CHIP	39K	5%	1/16W
R42	1-216-837-11	METAL CHIP	22K	5%	1/16W
R45	1-216-851-11	METAL CHIP	330K	5%	1/16W
R47	1-216-849-11	METAL CHIP	220K	5%	1/16W
R48	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R49	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R50	1-216-833-11	METAL CHIP	10K	5%	1/16W
R51	1-216-864-11	METAL CHIP	0	5%	1/16W
R52	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R53	1-216-158-00	METAL GLAZE	22	5%	1/8W
R54	1-216-845-11	METAL CHIP	100K	5%	1/16W
R55	1-216-855-11	METAL CHIP	680K	5%	1/16W
R56	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R57	1-216-834-11	METAL CHIP	12K	5%	1/16W
R58	1-216-837-11	METAL CHIP	22K	5%	1/16W
R59	1-216-851-11	METAL CHIP	330K	5%	1/16W
R60	1-216-847-11	METAL CHIP	150K	5%	1/16W
R61	1-216-837-11	METAL CHIP	22K	5%	1/16W
R63	1-218-273-11	METAL GLAZE	510K	5%	1/16W
R64	1-216-842-11	METAL CHIP	56K	5%	1/16W
R65	1-216-850-11	METAL CHIP	270K	5%	1/16W
R68	1-216-845-11	METAL CHIP	100K	5%	1/16W
R69	1-216-849-11	METAL CHIP	220K	5%	1/16W
R72	1-216-839-11	METAL CHIP	33K	5%	1/16W
R73	1-216-847-11	METAL CHIP	150K	5%	1/16W
R74	1-216-839-11	METAL CHIP	33K	5%	1/16W
R75	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R76	1-216-856-11	METAL CHIP	820K	5%	1/16W
R77	1-216-849-11	METAL CHIP	220K	5%	1/16W
R78	1-216-833-11	METAL CHIP	10K	5%	1/16W
R79	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R80	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R81	1-216-833-11	METAL CHIP	10K	5%	1/16W
R82	1-216-813-11	METAL CHIP	220	5%	1/16W
R83	1-216-813-11	METAL CHIP	220	5%	1/16W
R84	1-216-813-11	METAL CHIP	220	5%	1/16W
R88	1-216-809-11	METAL CHIP	100	5%	1/16W
R89	1-216-809-11	METAL CHIP	100	5%	1/16W
R90	1-216-845-11	METAL CHIP	100K	5%	1/16W
R91	1-216-845-11	METAL CHIP	100K	5%	1/16W
R92	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R93	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R98	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R103	1-216-009-00	METAL CHIP	22	5%	1/10W
R104	1-216-813-11	METAL CHIP	220	5%	1/16W
R105	1-216-809-11	METAL CHIP	100	5%	1/16W
R111	1-216-837-11	METAL CHIP	22K	5%	1/16W
R112	1-216-845-11	METAL CHIP	100K	5%	1/16W

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Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV11	1-238-091-11	RES, ADJ, CERMET 22K	
RV12	1-238-094-11	RES, ADJ, CERMET 220K	
RV13	1-238-091-11	RES, ADJ, CERMET 22K	
RV14	1-238-091-11	RES, ADJ, CERMET 22K	
		< VIBRATOR >	
X11	1-760-479-11	VIBRATOR, CERAMIC (8.0MHz)	
X12	1-760-241-11	VIBRATOR, CERAMIC (16.934MHz)	
**********			
*	1-664-104-11	SW BOARD	
		********	
		< SWITCH >	
SW1	1-572-688-11	SWITCH, PUSH (1 KEY) (LIMIT)	
**********			

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SONY

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

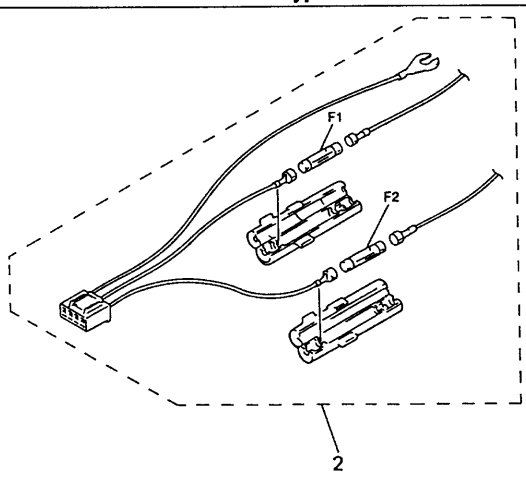
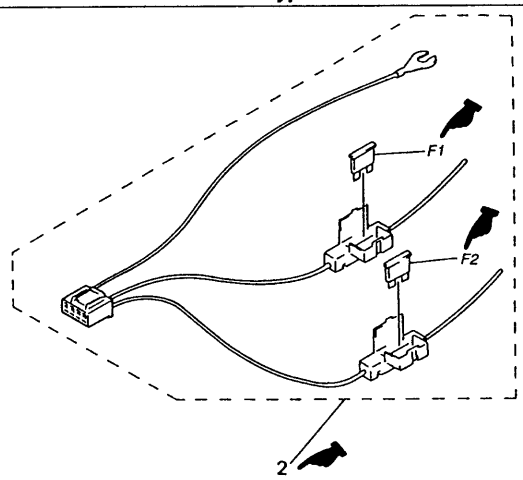
SUPPLEMENT-5

File this supplement with the service manual.

Subject: Cord (with connector) (for RF unit) Modification

(ENG-97004)

☛: Indicates changed portion.

Page	Former Type	New Type
2		

Ref. No.	Part No.	Description
2	1-777-519-11	CORD (WITH CONNECTOR)
F1	1-532-416-00	FUSE (3.15A)
F2	1-532-360-XX	FUSE (1A)

Ref. No.	Part No.	Description
2	1-777-519-12	CORD (WITH CONNECTOR) (POWER) ☛
F1	1-532-731-11	FUSE (BLADE TYPE) (AUTO FUSE) (3A/32V) ☛
F2	1-532-798-11	FUSE (BLADE TYPE) (AUTO FUSE) (1A/32V) ☛

* Page on SERVICE MANUAL SUPPLEMENT-3.

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E Model

CORRECTION-1

Correct your service manual as shown below.

☛ : **indicates corrected portion.**

Page	INCORRECT				CORRECT			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
38	12	X-3364-882-1	ARM (SPRING) ASSY		12	X-3370-157-1	ARM (SPRING 2) ASSY ☛	

(SPM-97148)

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